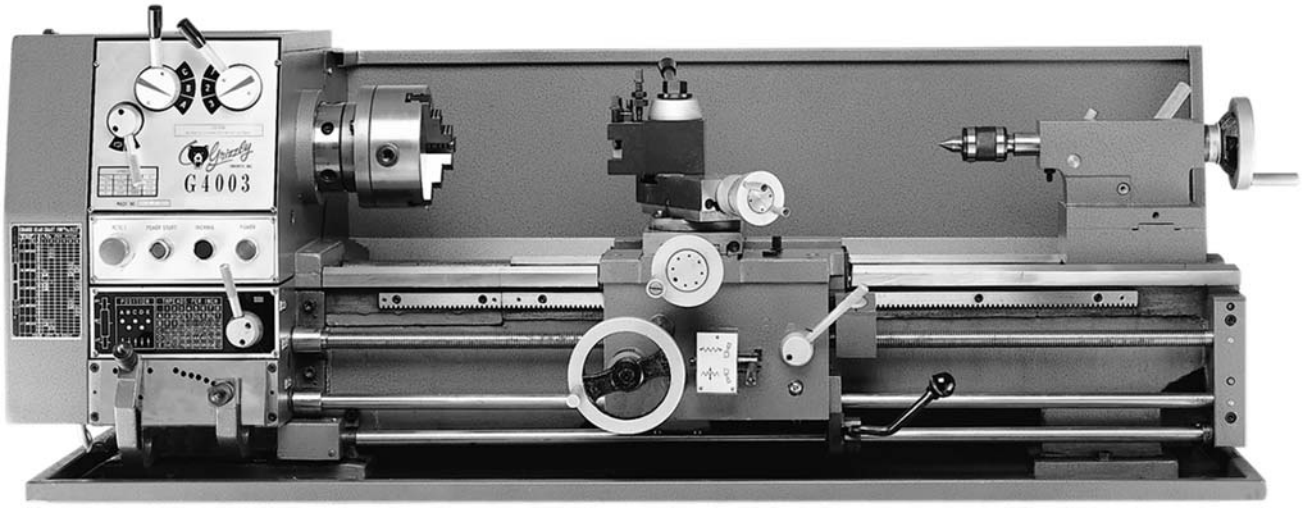
Grizzly Industrial, Inc.®

GEAR HEAD METAL LATHE

MODEL G4002 / G4003

INSTRUCTION MANUAL



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WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemical are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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SECTION 1: SAFETY

⚠WARNING

For Your Own Safety Read Instruction Manual Before Operating This Equipment

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words which are intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

⚠DANGER **Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠WARNING **Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠CAUTION **Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.**

NOTICE **This symbol is used to alert the user to useful information about proper operation of the equipment.**

⚠WARNING

Safety Instructions For Power Tools

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE ADJUSTING KEYS AND WRENCHES**. Develop a habit of checking to see that keys and adjusting wrenches are removed from tool before turning on**.**
3. **KEEP WORK AREA CLEAN**. Cluttered areas and benches invite accidents.
4. **DON'T USE IN DANGEROUS ENVIRONMENT**. Don't use power tools in damp or wet locations, or where any flammable or noxious fumes may exist. Keep work area well lighted.
5. **KEEP CHILDREN AND VISITORS AWAY**. All children and visitors should be kept a safe distance from work area.
6. **MAKE WORK SHOP CHILD PROOF** with padlocks, master switches, or by removing starter keys.
7. **DON'T FORCE TOOL**. It will do the job better and safer at the rate for which it was designed.
8. **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.

⚠WARNING

Safety Instructions For Power Tools

9. **USE PROPER EXTENSION CORD**. Make sure your extension cord is in good condition. Conductor size should be in accordance with the chart below. The amperage rating should be listed on the motor or tool nameplate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Your extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords if they become damaged.

Minimum Gauge for Extension Cords

	LENGTH		
AMP RATING	**25ft**	**50ft**	**100ft**
0-6	18	16	16
7-10	18	16	14
11-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No

10. **WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.

11. **ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.

12. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

13. **DON'T OVERREACH.** Keep proper footing and balance at all times.

14. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

15. **DISCONNECT TOOLS** before servicing and changing accessories, such as blades, bits, cutters, and the like.

16. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in off position before plugging in.

17. **USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury.

18. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

19. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.

⚠WARNING

Additional Safety Instructions For The Lathe

1. **MAKE SURE ALL GUARDS** are in place and that the lathe sits on a flat, stable surface.

2. **BEFORE STARTING THE MACHINE** be certain the workpiece has been properly engaged in the chuck and tailstock center (if in use) and that there is adequate clearance for full rotation.

3. **ADJUST TOOL HOLDER** to provide proper support for the turning tool you will be using. Test tool holder clearance by rotating workpiece by hand before turning lathe on.

4. **SELECT THE TURNING SPEED** which is appropriate for the type of work and the type of material. Allow the lathe to gain its full speed before beginning turning.

5. **NEVER CHANGE FEED RATE** or spindle speeds while the lathe is turning.

6. **NEVER REVERSE MOTOR DIRECTION** while the lathe is running.

7. **DO NOT STOP LATHE USING YOUR HAND** against the workpiece.

8. **DO NOT LEAVE LATHE RUNNING UNATTENDED** for any reason.

9. **NEVER OPERATE THE LATHE WITH DAMAGED OR WORN PARTS.** Maintain your lathe in proper working condition. Perform routine inspections and maintenance promptly when called for. Put away adjustment tools after use.

10. **MAKE SURE YOUR METAL LATHE IS TURNED OFF**, disconnected from its power source and all moving parts have come to a complete stop before starting any inspection, adjustment, or maintenance procedure.

11. **KEEP LOOSE CLOTHING ARTICLES** such as sleeves, belts or jewelry items away from the lathe spindle.

12. **ALWAYS USE THE PROPER CUTTING TOOLS** for the material you are turning, make certain they are sharp and that they are held firmly in the tool holder.

13. **ALWAYS PLACE A BOARD OR PIECE OF PLYWOOD ACROSS THE BEDWAY** when removing or installing chucks to avoid the possibility of a finger pinch point occurring between a loose chuck and the edges of the bedway.

⚠CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment or poor work results.

⚠WARNING

Like all power tools, there is danger associated with the Model G4002/3 Metal Lathe. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this tool with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

SECTION 2: CIRCUIT REQUIREMENTS

220V Operation

The Model G4002/3 is wired for 220 volt, single phase operation. The 2 HP motor will safely draw 9 amps at 220V. A 10-amp fuse or circuit breaker should be used when connecting this metal lathe. Circuits rated any higher are not adequate to protect the motor.

If you operate this lathe on any circuit that is already close to its capacity, it might blow a fuse or trip a circuit breaker. However, if an unusual load does not exist and a power failure still occurs, contact a qualified electrician or our service department.

Equipment returned to us for service that shows evidence of being over-fused will be repaired or replaced totally at the customer's expense, regardless of the present warranty status.

Extension Cords

If you find it necessary to use an extension cord with the Model G4002/3, make sure the cord is rated Hard Service (grade S) or better. Refer to the chart in the standard safety instructions to determine the minimum gauge for the extension cord. The extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords when they become worn or damaged.

Grounding

In the event of an electrical short, grounding reduces the risk of electric shock by providing a path of least resistance to disperse electric current. This tool is equipped with a power cord having an equipment-grounding conductor. **See Figure 1.** The outlet must be properly installed and grounded in accordance with all local codes and ordinances.

⚠WARNING

This equipment must be grounded. Verify that any existing electrical outlet and circuit you intend to plug into is actually grounded. If it is not, it will be necessary to run a separate 12 A.W.G. copper grounding wire from the outlet to a known ground. Under no circumstances should the grounding pin from any three-pronged plug be removed. Serious injury may occur.

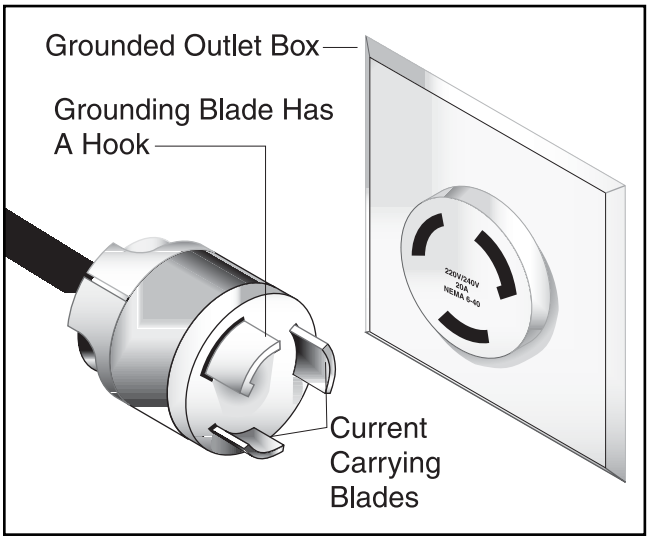

Figure 1. Typical 220V plug and outlet.

SECTION 3: INTRODUCTION

Commentary

We are proud to offer the Grizzly Model G4002 / G4003 Gear Head Metal Lathe. The Model G4002 / G4003 is part of a growing Grizzly family of fine metalworking machinery. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

The Model G4002/3 is a precision metalworking lathe. It features cast iron construction, 24" or 36" V-bed, a speed range of 70-1,400 RPM, 9-speed gearbox and a complete electrical package. The electrical package consists of a 2 H.P., 110V / 220V motor, electro-magnetic motor control and overload protection. We also offer many accessories for this lathe. Please refer to the latest Grizzly catalog for prices and information.

We are also pleased to provide this instructional manual with the Model G4002 / G4003 Lathe. This manual was written to guide you through assembly, review safety considerations and cover basic operating procedures. It represents our latest effort to produce the best documentation possible. If you have any constructive criticisms or comments you feel we should include in our next printing, please write us at the address below.

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C/O Technical Documentation
P.O. Box 2069
Bellingham, WA 98227-2069

Most importantly, we stand behind our machines. If you have any service questions or parts requests, please call or write us at the location listed below.

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E-Mail: techsupport@grizzly.com
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The specifications, drawings, and photographs illustrated in this manual represent the Model G4002/3 as supplied when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. Whenever possible, though, we send manual updates to all owners of a particular tool or machine. Should you receive one, we urge you to insert the new information with the old and keep it for reference.

⚠CAUTION

To operate this, or any power tool, safely and efficiently, it is essential to become as familiar with its characteristics as possible. The time you invest before you begin to use your Model G4002/3 will be time well spent. DO NOT operate this machine until you are completely familiar with the contents of this manual. Make sure you read and understand all of the safety procedures. If you do not understand something, DO NOT operate the machine.

Unpacking

This Metal Lathe is shipped from the manufacturer in a carefully packed crate. If you discover the machine is damaged after you've signed for delivery, and the truck and driver are gone, you will need to file a freight claim with the carrier. Save the containers and all packing materials for possible inspection by the carrier or its agent. Without the packing materials, filing a freight claim can be difficult. If you need assistance determining whether you need to file a freight claim, or with the procedure to file one, please contact our Customer Service.

⚠WARNING

The G4002 and G4003 are heavy machines (1015 lbs. and 1040 lbs. shipping weight). DO NOT over-exert yourself while unpacking or moving your machine – get assistance. In the event that your Metal Lathe must be moved up or down a flight of stairs, be sure that the stairs are capable of supporting the combined weight of people and the machine. **Serious personal injury may occur.**

When you are completely satisfied with the condition of your shipment, you should inventory its parts.

Piece Inventory

The Model G4002/3 is, for the most part, pre-assembled at the factory. Inside the crate you'll find:

- The Model G4002/3 Metal Lathe
- 6" 3-jaw Chuck
- 8" 4-jaw Chuck
- Face Plate
- Steady Rest
- Follow Rest
- Quick Change Tool Post
- Tool Holder
- Toolbox
- Metric Allen® Wrenches
- Straight Blade Screwdriver
- Phillips® Screwdriver
- Oil can
- 26T Gear
- 27T Gear
- 35T Gear
- 2- 40T Gear
- 45T Gear
- 50T Gear
- Chuck wrenches (2)
- Reverse Jaws for the 3-Jaw Chuck
- Dead Center - MT #3
- Live Center - MT #3

In the event that any non-proprietary parts are missing (e.g. a nut or a washer), we would be glad to replace them, or, for the sake of expediency, replacements can be obtained at your local hardware store.

Clean Up

The unpainted surfaces are coated with a waxy oil to protect them from corrosion during shipment. Remove this protective coating with a solvent cleaner or citrus-based degreaser, like Grizzly's G7895 Citrus Engine Degreaser. Avoid chlorine-based solvents as they may damage painted surfaces should they come in contact. Always follow the usage instructions on the product you choose for clean up.

⚠CAUTION

Many of the solvents commonly used to clean machinery can be highly flammable, and toxic when inhaled or ingested. Always work in well-ventilated areas far from potential ignition sources when dealing with solvents. Use care when disposing of waste rags and towels to be sure they do not create fire or environmental hazards. Keep children and animals safely away when cleaning and assembling this machine.

⚠WARNING

Do not use gasoline or other petroleum-based solvents to remove this protective coating. These products generally have low flash points which makes them extremely flammable. A risk of explosion and burning exists if these products are used. Serious personal injury may occur.

⚠CAUTION

All die-cut metal parts have a sharp edge (called "flashing") on them after they are formed. This is generally removed at the factory. Sometimes a bit of flashing might escape inspection, and the sharp edge may cause cuts or lacerations when handled. Please examine the edges of all die-cut metal parts and file or sand the edge to remove the flashing before handling.

Site Considerations

1. **Floor Load:** The Model G4002/3 can be mounted on your existing workbench or on an optional cabinet stand which is listed in our current Grizzly catalog. If you choose to use the stand, you will find the holes for bolting the G4002/3 to the stand are already in place. If you are using your own bench, ensure that it is strong enough to handle the weight of the G4002/3 lathe. Keep in mind, whichever way you choose to mount the lathe, it's essential that the mounting surface be perfectly flat. Use an accurate carpenter's level to ensure that your bench is properly leveled.

2. **Working Clearances:** Consider existing and anticipated needs, size of material to be processed through each machine, and space for auxiliary stands, work tables or other machinery when establishing a location for your lathe.

3. **Lighting and Outlets:** Lighting should be bright enough to eliminate shadow and prevent eye strain. Electrical circuits should be dedicated or large enough to handle amperage requirements. Outlets should be located near each machine so power or extension cords are clear of high-traffic areas. Observe local electrical codes for proper installation of new lighting, outlets, or circuits.

⚠CAUTION

Make your shop "child safe". Ensure that your workplace is inaccessible to youngsters by closing and locking all entrances when you are away. Never allow visitors in your shop when assembling, adjusting or operating equipment.

SECTION 4: ASSEMBLY & SETUP

Mounting

This lathe should be securely mounted to a stand or bench top. An accessory stand is available from Grizzly, please see our current catalog for pricing. There are 2 holes in the base at the tailstock end of the lathe and four holes on the gearhead end which can be used to secure the machine to a stand.

The lathe does not require a great deal of assembly. This section details the installation of the various accessory holding devices. The following section will familiarize you with the controls for your new lathe. After you have completed both of these sections we will do a test run of the machine. Do not attempt a test run until you have become familiar with both of these sections.

⚠WARNING

DO NOT attempt to start this machine until you have completed all of the assembly and control familiarization steps. When performing the assembly steps, ensure that the switch is off and the power is disconnected. Failure to comply with this could cause inadvertent starting of the machine which can result in serious operator injury.

Lubrication

The G4002/3 is shipped from the factory prelubricated. However, it is recommended that you go through the entire lubrication sequence before operating the machine. Review **Section 7: Maintenance** for lubrication instructions. **Lubrication must be completed before you start your new lathe.**

Chucks

The Model G4002/3 Metal Lathe comes equipped with a 6" 3-jaw chuck (already installed), a 8" 4-jaw chuck and a face plate.

The 3-jaw chuck is a scroll-type chuck, meaning that all three jaws move in unison when adjustments are made. The 4-jaw chuck, on the other hand, features independent jaws. The 4-jaw chuck is used for square or unevenly-shaped stock.

The 3 and 4-jaw chucks have a D-1 Camlock mount. Please note that there are lines stamped into the cam and on the chuck body. A chuck key is used to turn the locking cams as in **Figure 2.**

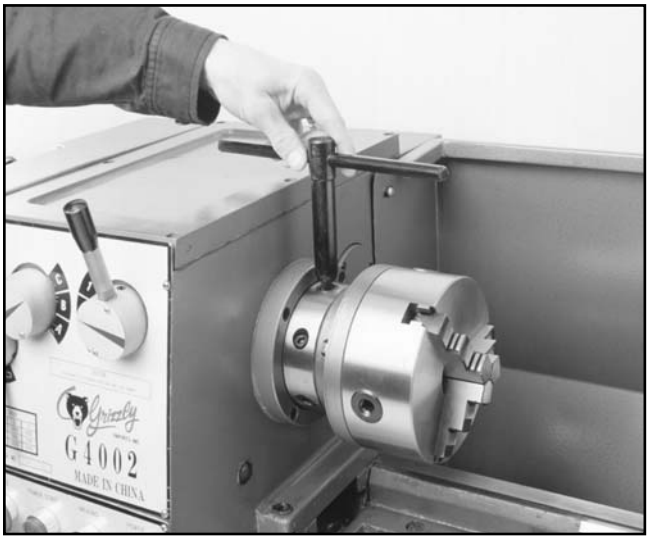


Figure 2. Key positioned to remove chuck.

⚠CAUTION

ALWAYS place a piece of plywood over the ways of the lathe before removing or installing a chuck. This helps by covering the sharp corners of the bed, protecting your hands and fingers. Use extreme care when removing or installing a chuck so that your hands do not become trapped between the chuck and the plywood.

To remove a chuck:

1. Place a piece of plywood across the lathe bed and position it just under the chuck. The board should be at least 8" wide and 10" long.

⚠WARNING

Never leave a chuck key in the chuck when it is not in use. If the machine is accidentally started with this in place, it can become a projectile and cause serious injury.

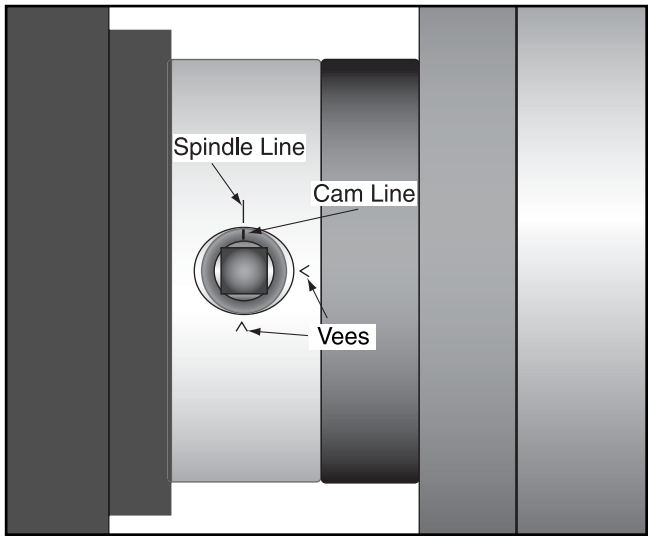


Figure 3. Cam lines aligned to spindle line.

2. Turn a cam, with the chuck key, in the lathe spindle in a counter-clockwise rotation until the line on the cam is aligned with the line going *across* the spindle housing as in **Figure 3.**

⚠WARNING

The chuck is heavy and can be awkward to handle. Be aware that when removing or installing a chuck a finger pinch situation exists.

3. Turn the other cams in the same way. Make sure to support the chuck with one hand as you align the last cam. The chuck may come off at this point so **it is important you are ready to support its weight.**

4. Remove the chuck key.

If the chuck is still tight on the spindle:
Tap the back of the chuck with a rubber or wooden mallet while supporting the bottom of the chuck with your free hand. If the chuck does not immediately come off, rotate the spindle approximately 60˚ and tap again. Make sure all the marks on the cams and spindle are in proper alignment.

To install a chuck:

1. Place a piece of plywood across the lathe bed and position it just under the spindle.

2. Lift the chuck up to the spindle and align the pins in the back with the holes on the spindle's face and insert the pins.

3. While supporting the weight of the chuck, turn one cam with the chuck key until the cam line is between the two vees on the spindle. Do not tighten at this time.

4. Rotate the spindle and repeat step **3** on the last two cams.

5. Return to the first cam and snug it up. Repeat with the rest of the cams.

6. Finally, tighten all three cams.

Live Center

The live center is used to support stock which is too long to be supported by the chuck alone. Stock protruding more than three times its diameter should be supported by the live center.

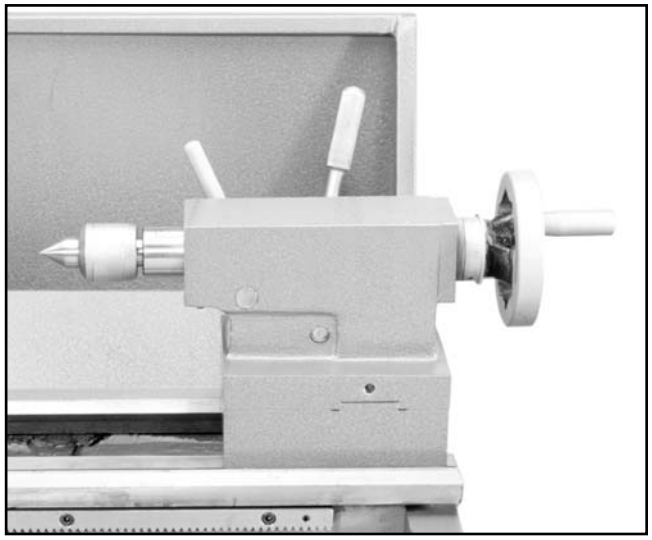


Figure 4. Live center installed in tailstock.

The tailstock barrel and live center have a Morse taper #3. Before assembling these, insure that the mating surfaces are “white glove” clean. These parts will last longer and remain accurate when properly maintained. Morse tapers will not interlock when oil is present on the mounting surfaces. Insert the end of the live center into the tailstock bore until it seats. The force of a mounted workpiece will fully seat the taper.

When using a live center, the tailstock barrel should protrude about ½" and not more than 3". **See Figure 4.**

To remove the live center, back the tailstock barrel all the way into the tailstock casting. The live center will pop out. Be sure to catch it when it comes out to avoid damaging the tip.

Steady Rest

The steady rest supports long, small diameter stock that otherwise could not be turned. The steady rest can also replace the tailstock to allow for cutting tool access at the outboard end of your workpiece.

To mount the steady rest:

1. Secure to bedway from below with the locking plate.

2. A single hex bolt, along with a nut and washer, is used to hold the steady rest in place. **See Figure 5.**

3. The bearing surfaces on the steady rest should receive periodic lubrication while in use to prevent premature wear.

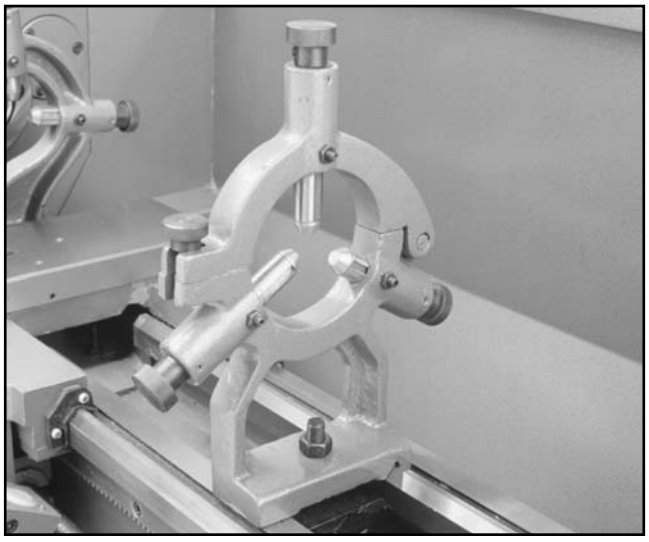


Figure 5. Steady rest in place.

Follow Rest

The follow rest is normally used with small diameter stock to prevent the workpiece from “springing” under pressure from the turning tool. To install the follow rest:

1. The follow rest is secured to the saddle with two cap screws. **See Figure 6.**

2. The bearing surfaces on the follow rest are similar to those on the steady rest, and should be lubricated to prevent premature wear.

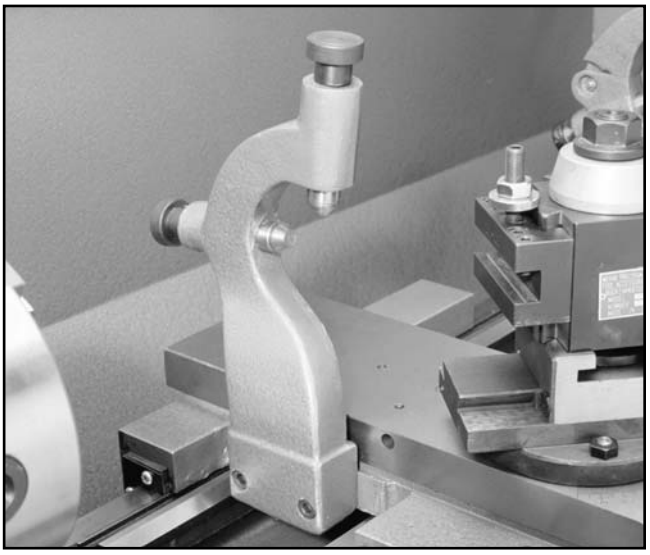


Figure 6. Follow rest secured to saddle.

4-Jaw Chuck

The 4-jaw chuck supplied with the G4002/3 is not mounted to the back plate. Assembly of the back plate components is also required.

1. Make note of the reference lines on each of the 3-jaw chuck studs. Thread each of the 4-jaw chuck cam lock studs into the 4-jaw chuck back plate to the exact same depth as the 3-jaw studs. Screw in the locking cap screws.

2. Mount the back plate on the spindle.

3. Accurately measure the inside of the back relief bore on the 4-jaw chuck. This dimension is critical, ± .001".

4. Face the back plate to true it. Make passes across the face until its entire surface has been cut.

5. Turn a shoulder into the face ⅛" deep and .001" to .002" larger than the back relief bore diameter. Chamfer the corner a small amount.

6. Set the chuck on the back plate aligning the shoulder with the relief bore. Use a transfer punch to mark the back plate. If a transfer punch is not available, a drill bit of the same size as the mounting holes in the chuck can be used. Lightly tap on the bit, rotate it 90° and tap it again.

7. Remove the chuck from the back plate and center punch the marks. Drill and tap the holes for ⅜"-16.

8. Set the chuck on the back plate. Line up the mounting holes and thread in the cap screws supplied. Remember that this is a .001" to .002" press fit. Snug up the first cap screw then alternate to the cap screw across the chuck. Alternating the tightening process insures the chuck will go on straight. This step should be repeated until the back plate fits snugly against the chuck. If the chuck fits loosely on the back plate, or is crooked on the shoulder, it will be necessary to face and shoulder the back plate again.

SECTION 5: CONTROLS

Spindle Speeds

Never change speeds while spindle or motor is in motion.

The speed of the spindle is controlled by the positions of the speed control knobs. **See Figure 7.** By positioning the knobs using the chart in **Figure 8**, you can achieve all of these speed ranges: 70, 200, 220, 270, 360, 600, 800, 1000 and 1400 RPM.

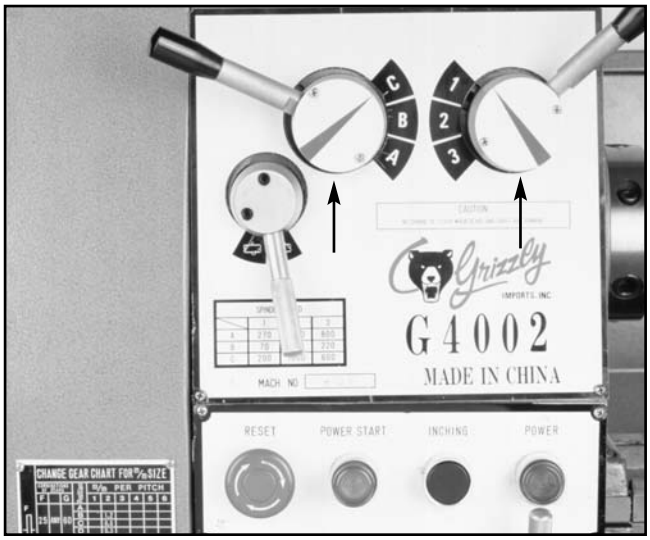


Figure 7. Speed shifting levers.

Spindle Speed

	1	2	3
A	270	1400	800
B	70	360	220
C	200	1000	600

Figure 8. Speed chart.

The chart above shows the various combinations of knob positions for achieving a desired speed.

Example:

To select a spindle speed of 600 RPM, move the left-hand selector knob until the indicator arrow on its hub is pointing to the “C”. Move the right-hand selector knob until its indicator arrow is pointed at the “3”.

Feed Direction

Never move selection levers while machine is running.

The G4002/3 Metal Lathe can cut left or right while feeding or threading and across both ways for facing operations. This feed direction is controlled by the selection knob as shown in **Figure 9**.

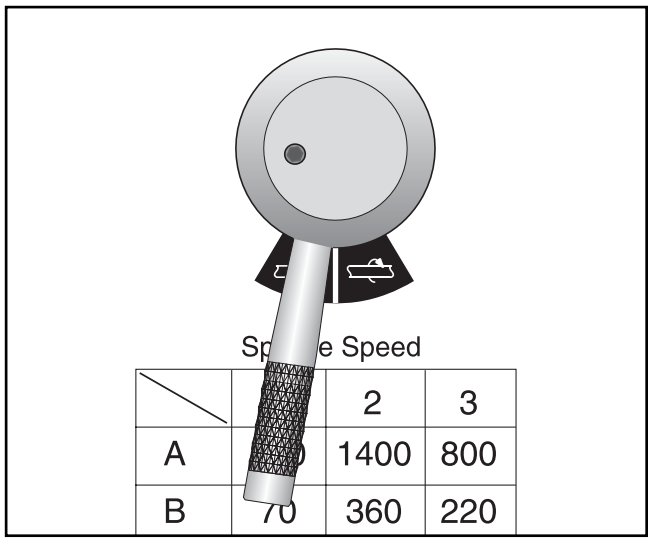


Figure 9. Directional control lever.

When the selection knob is positioned as depicted in **Figure 9**, the apron will move to the right along the bed or the cross feed will travel away from the operator. The cross feed and longitudinal feed selection is controlled on the apron and will be discussed later.

To reverse the direction of the feeding or threading operation, rotate the selection knob to the right. It should be noted that when the lever is positioned in the middle, *no* direction is selected and all of the drive mechanisms after this point are in neutral.

Important:

Do not force any selection lever on the machine. If the lever will not engage, rotate the chuck *by hand* while keeping light pressure on the selector. As the chuck rotates it aligns the gears and the selector will engage.

Selecting the Feed Rod

The feed rod can be selected by rotating the handle to the left as in **Figure 10.** Use this position for all feeding operations. When the lever is positioned straight up, no drive device is selected and the gear train is in neutral after this point.

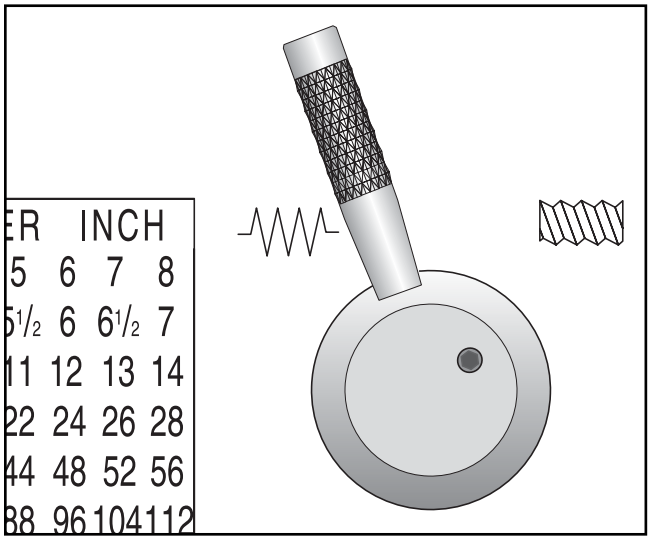


Figure 10. Feed rod selected.

Quick Change Selection

The two levers at the bottom of the headstock change the feed rate, or the number of threads-per-inch. This section of the machine is commonly known as the Quick Change Gear Box. **See Figure 11.** The left-hand lever can be engaged in any of five different positions and are listed on the charts as A, B, C, D, and E. The right-hand lever has 8 positions and are listed on the charts as 1 through 8.

The machine label describes some of the more typical settings which might be used. **Figure 12** shows the feed rate chart located on the gear cover of the lathe. The chart is divided into metric feed rates and inch feed rates.

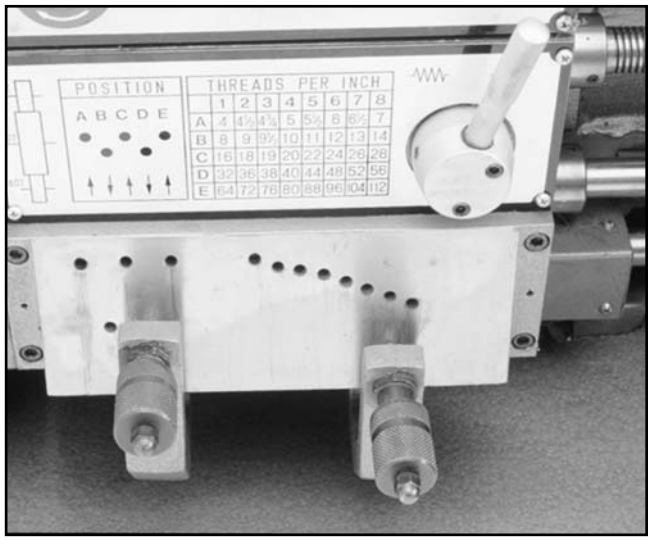


Figure 11. Feed rate selector levers.

Important:
Do not force any selection lever on the machine. If the lever will not engage, rotate the chuck *by hand* while keeping light pressure on the selector. As the chuck rotates, it aligns the gears and the selector will engage.

To change the position of the feed selector, pull the knurled handle. This disengages a pin which is inserted into a selection hole. Position the lever in the down position and slide to the right or left until it is positioned below the desired selection hole. Raise the lever with one hand while pulling the handle with the other. The pin at the end of the lever should align with the selection hole. If it does not, rotate the feed rod or chuck *by hand* while maintaining gentle pressure on the lever.

Feed Rate Chart

To perform a longitudinal cut in inches, use the bottom portion of the chart. If the desired feed rate is 0.0062"/revolution, look at the longitudinal ranges. According to the chart we would put the left-hand lever in the “C” position and the right-hand lever in the “4” position. Metric calculations would be done the same way. To perform a cross feed cut with a feed rate of 0.0013" move the left-hand lever to the “D” position and the right-hand lever to the “1” position.

Please note that when either of the two selector levers are left in the down position, the drive train after this point is in neutral.

40T
86T
40T

Position		1	2	3	4	5	6	7	8
		mm C.T.							
A	~	0.791	0.703	0.666	0.632	0.575	0.527	0.486	0.452
	≠	0.268	0.238	0.226	0.214	0.196	0.178	0.166	0.154
B	~	0.395	0.351	0.333	0.316	0.287	0.264	0.243	0.226
	≠	0.134	0.119	0.113	0.107	0.098	0.089	0.083	0.077
C	~	0.198	0.175	0.167	0.158	0.144	0.132	0.122	0.113
	≠	0.067	0.060	0.057	0.054	0.049	0.045	0.042	0.038
D	~	0.099	0.088	0.083	0.079	0.072	0.066	0.061	0.057
	≠	0.033	0.030	0.028	0.027	0.025	0.022	0.021	0.019
E	~	0.050	0.044	0.042	0.040	0.036	0.033	0.031	0.028
	≠	0.017	0.015	0.014	0.014	0.012	0.011	0.011	0.010
Position		1	2	3	4	5	6	7	8
		inch							
A	~	0.0311	0.0277	0.0262	0.0249	0.0226	0.0207	0.0191	0.0178
	≠	0.0105	0.0094	0.0089	0.0084	0.0077	0.0070	0.0065	0.0061
B	~	0.0156	0.0138	0.0131	0.0124	0.0113	0.0104	0.0096	0.0089
	≠	0.0053	0.0047	0.0044	0.0042	0.0039	0.0035	0.0032	0.0030
C	~	0.0078	0.0069	0.0066	0.0062	0.0057	0.0052	0.0048	0.0044
	≠	0.0026	0.0024	0.0022	0.0021	0.0019	0.0018	0.0017	0.0015
D	~	0.0039	0.0035	0.0033	0.0031	0.0028	0.0026	0.0024	0.0022
	≠	0.0013	0.0012	0.0011	0.0011	0.0010	0.0009	0.0008	0.0007
E	~	0.0020	0.0017	0.0017	0.0016	0.0014	0.0013	0.0012	0.0011
	≠	0.0007	0.0006	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004

Figure 12. Feed rate selection.

~ This symbol indicates longitudinal feed.
≠ This symbol indicates cross feed rates.

Feed Lever - Longitudinal and cross slide powered motions are controlled by the feed lever. The lever pivots through two stops which require moving the lever left and right as well as up and down. Moving this lever upward activates the automatic longitudinal feed. Moving the lever down activates the cross slide. **See Figure 13.**

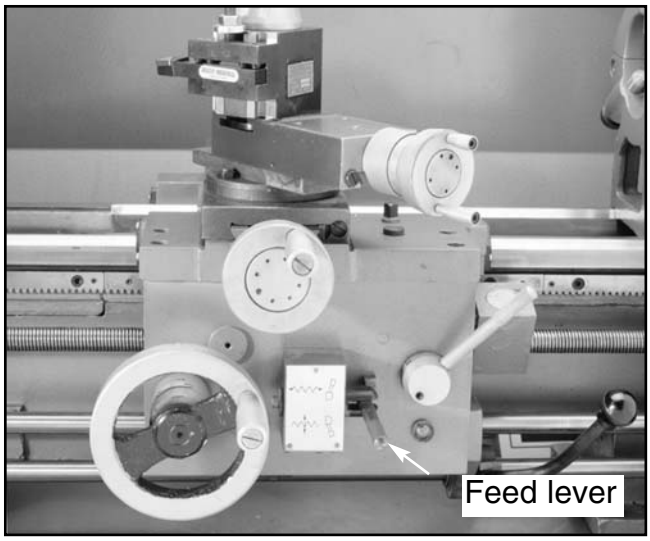


Figure 13. Feed lever in neutral postition.

Thread Selection

Inch thread selection:

To cut threads with inch pitches, a selection must be made for feed direction, pitch and lead screw.

Select the desired direction of cut as described in the section titled **Feed Direction.**

Rotate the Feed/Lead Screw selection lever to the position shown in **Figure 14.** If the lever does not readily engage, rotate the lead screw or the chuck *by hand* while maintaining gentle pressure on the lever.

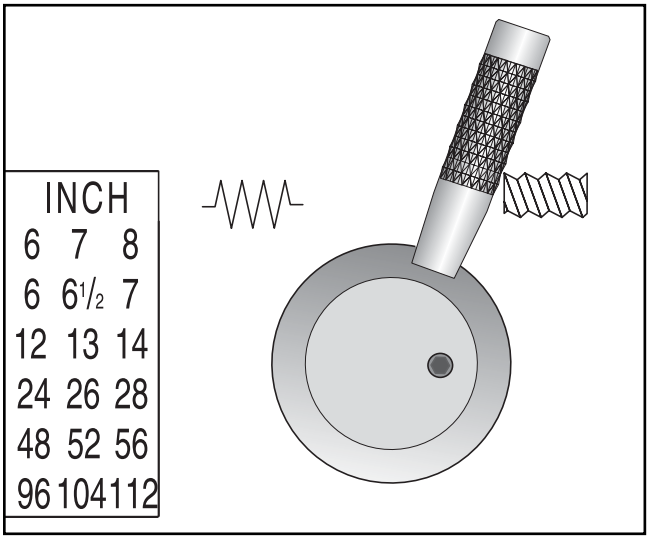


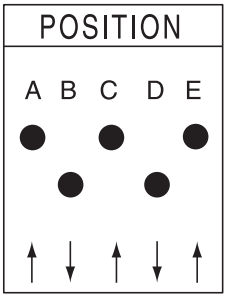
Figure 14. Selector positioned for threads.

While other thread pitches may be achieved, the G4002/3 comes with a chart that requires no gear changes for cutting inch threads.

To achieve a desired thread pitch in inches, it is necessary to determine the quick-change lever positions. Refer to **Figure 15** and find the desired thread.

Example:

The thread to be cut has 20 threads per inch (TPI). Looking at the chart we find that the left hand lever would be positioned at “C”. The right hand lever would be positioned at “4”.



THREAD PER INCH								
	1	2	3	4	5	6	7	8
A	4	4½	4¾	5	5½	6	6½	7
B	8	9	9½	10	11	12	13	14
C	16	18	19	20	22	24	26	28
D	32	36	38	40	44	48	52	56
E	64	72	76	80	88	96	104	112

Figure 15. Thread pitch chart.

NOTICE

The threading dial cannot be used when cutting metric threads. Once the half nut has been engaged, it must remain engaged throughout the threading process.

Half Nut Lever - This lever compresses and releases the half nut that engages the leadscrew. **See Figure 16.** The lever is only engaged while turning threads in stock. A lockout device featured in the lever mechanism engages when the feed selector is used.

NOTICE

Do not simultaneously engage the feed lever and the threading lever. Doing so will damage the lathe.

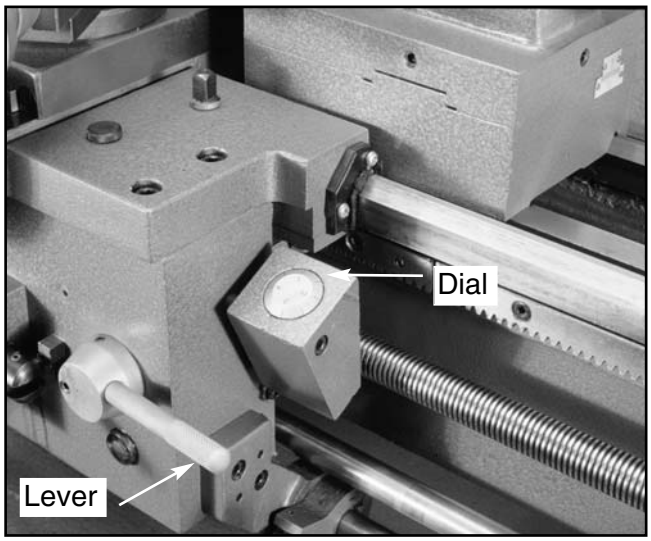


Figure 16. Threading dial and half nut lever.

Threading Dial Indicator - The indicator tells you when to engage the half nut to begin the threading process. **See Figure 16.**

The Threading Dial Indicator has 8 lines and four numbers printed on the dial. An indicator mark is positioned near the rim of the dial. The dial is mounted on a shaft that has a worm gear mounted at its opposite end. These rest in a housing that pivots so that the gear can be engaged or disengaged. An Allen® head cap screw is located on the side of the housing. Loosen this screw to change the positioning of this housing.

When engaged, the dial will turn when the spindle is turning. If the dial does not turn, readjust the housing.

When the half nut is engaged the dial stops turning. By carefully engaging the half nut as the appropriate line or number passes by the indicator mark, a thread can be established and the lead maintained through the multiple passes that are required to cut a thread to the finished depth.

The chart listed in **Figure 16b** shows a system for using the threading dial indicator while cutting inch threads.

Example:

To cut 11 threads per inch engage the half nut when the 1 or the 3 is on the indicator mark. Determine the length of the thread to be cut. Make a cut along the part and disengage the half nut. Return the carriage to the beginning of the cut. Watch the dial and when the 1 or the 3 comes around to the indicator mark engage the half nut. Repeat this process until the desired depth of cut has been achieved.

4	N	8	ANY	16	ANY	32	ANY	64	ANY
4½	1	9	1-3	18	N	36	ALL	72	ANY
4¾	1	9½	1	19	1	38	N	76	ALL
5	1	10	N	20	ALL	40	ANY	80	ANY
5½	1	11	1-3	22	N	44	ALL	88	ANY
6	1-3	12	ALL	24	ANY	48	ANY	96	ANY
6½	1	13	1-3	26	N	52	ALL	104	ANY
7	1	14	N	28	ALL	56	ANY	112	ANY

ANY = Engage at any time
ALL = Engage on all lines
N = Engage on any Number
1-3 = Engage on 1 or 3
1 = Engage only on 1

16b. Dial indicator chart.

Metric thread selection:

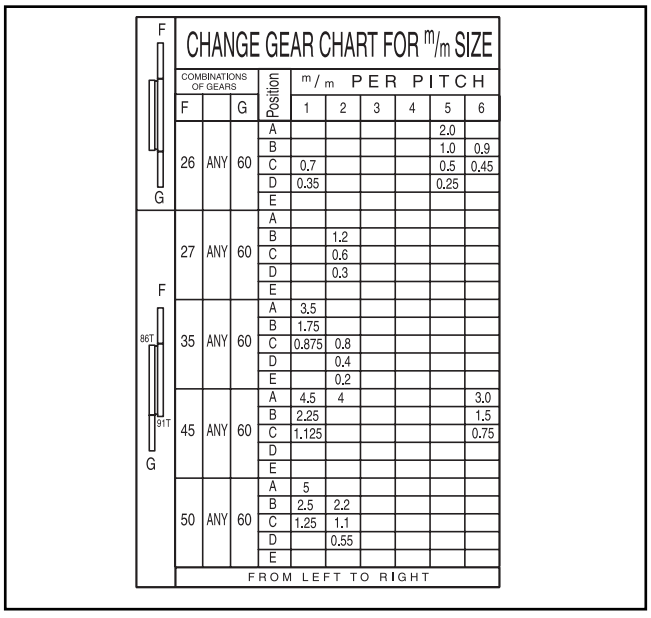
The chart in **Figure 17** lists 29 metric threads that can be cut on the G4002/3. Five ranges are used on the left hand quick change selector and 6 on the right hand quick change selector. Additionally, 5 gear changes are necessary to accomplish all of the available metric threads. These gear changes take place on the left hand end of the machine. **See Figure 18.**

The chart is divided into 3 main sections or columns. Starting from the left: Gear diagram, Combination of Gears and m/m Per Pitch.

To use the chart:

1. Find the desired pitch in the chart.

2. Below the m/m Per Pitch label are numbers. Find the corresponding number above the desired pitch and change the right hand quick change lever to that position.



CHANGE GEAR CHART FOR m/m SIZE

COMBINATIONS OF GEARS			Position	m/m PER PITCH					
F		G		1	2	3	4	5	6
26	ANY	60	A					2.0	
			B					1.0	0.9
			C	0.7				0.5	0.45
			D	0.35				0.25	
			E						
27	ANY	60	A						
			B		1.2				
			C		0.6				
			D		0.3				
			E						
35	ANY	60	A	3.5					
			B	1.75					
			C	0.875	0.8				
			D		0.4				
			E		0.2				
45	ANY	60	A	4.5	4				3.0
			B	2.25					1.5
			C	1.125					0.75
			D						
			E						
50	ANY	60	A	5					
			B	2.5	2.2				
			C	1.25	1.1				
			D		0.55				
			E						

FROM LEFT TO RIGHT

Figure 17. Metric thread chart

3. To the left of the desired pitch is a small column with a letter. This letter indicates placement of the left hand quick change lever. Move the lever to the corresponding location.

4. In the “Combination of Gears” column are 3 small columns. Please note the “F” and “G” at the top. The numbers below F and G represent the number of gear teeth of a gear included with the lathe. Find the gears that have the corresponding number of teeth as stated in the chart to the left of the desired pitch.

Example:

The desired metric pitch is 1.25 mm. Find this number in the chart and find the number of teeth of the two gears to the left. The F gear will need to have 47 teeth and the G will need 60 teeth. A diagram on the left side of the chart on the machine tells us the 47 tooth gear goes on top of the middle gear and the 60 tooth gear goes on the bottom.

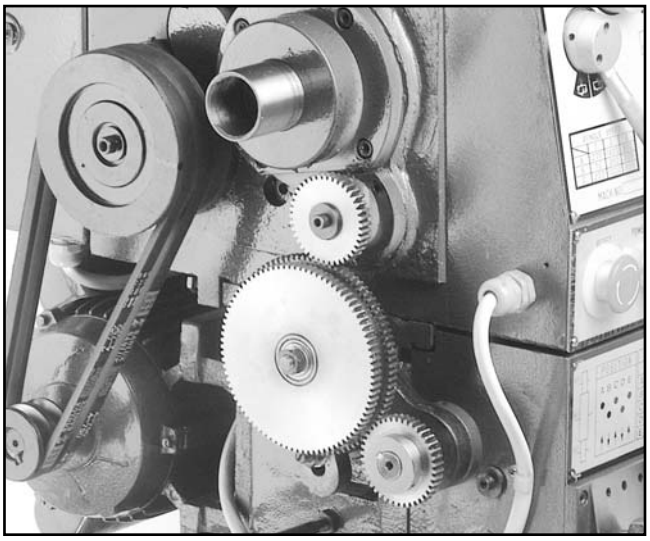


Figure 18. Change gear bracket and gears.

Thread Selection Cont.

Metric threading requires 5 gear changes to achieve all of the available pitches listed on the chart. Refer to **Figure 19** while reading the instructions below.

To change gears:

1. Loosen the nut below the middle gear and rotate the bracket so the middle gear moves away from gear F.

2. Loosen the cap screw at the center of the middle gear and slide it away from gear G.

3. Gear F can be removed by loosening the cap screw in its middle. Gear G has a setscrew in its rim. Loosen this screw and pull the gear off of the shaft.

4. Replace these two gears with the gears which will produce the desired pitch and secure with screws provided.

5. Slide the middle gear until it is in mesh with the G Gear. Tighten the cap screw at the center.

6. Pivot the bracket until the middle gear is in mesh with gear F and tighten the nut below.

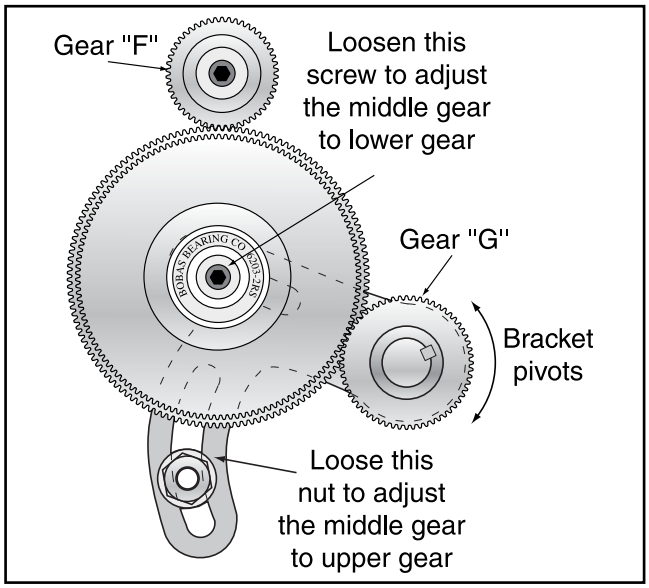

Gear "F"
Loosen this screw to adjust the middle gear to lower gear
Gear "G"
Bracket pivots
Loose this nut to adjust the middle gear to upper gear

Figure 19. Gear Placement

Carriage Controls

The carriage handwheel allows the cutting tool to move along the length of the lathe bed. The cross slide allows the cutting tool to travel perpendicular to the bed. The carriage features a top slide which allows linear movement of the cutting tool at any preset angle. This section will review the individual controls on the carriage and provide descriptions of their uses. **See Figure 20.**

Compound Slide Handwheel - The Top Slide Handwheel controls the position of the cutting tool relative to the workpiece. The top slide is adjustable for any angle. The graduated dial is adjustable using the same method as the dial on the cross slide. Angle adjustment is controlled by hex nuts on the base of the top slide.

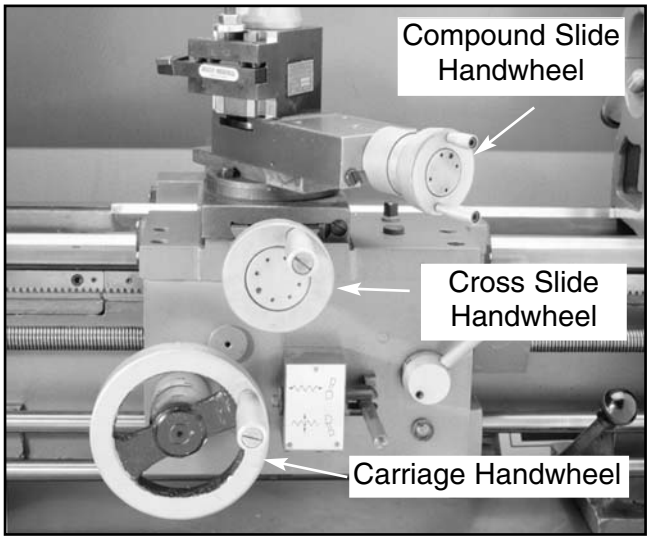


Figure 20. Handwheel locations.

Cross Slide Handwheel - The Cross Slide Handwheel moves the top slide toward and away from the work. Turning the dial clockwise moves the slide toward the workpiece. The graduated dial can be adjusted by holding the handwheel with one hand and turning the dial with the other.

Carriage Handwheel - The Longitudinal Handwheel moves the carriage left or right along the bed. The control is helpful when setting up the machine for turning or when manual movement is desired during turning operations.

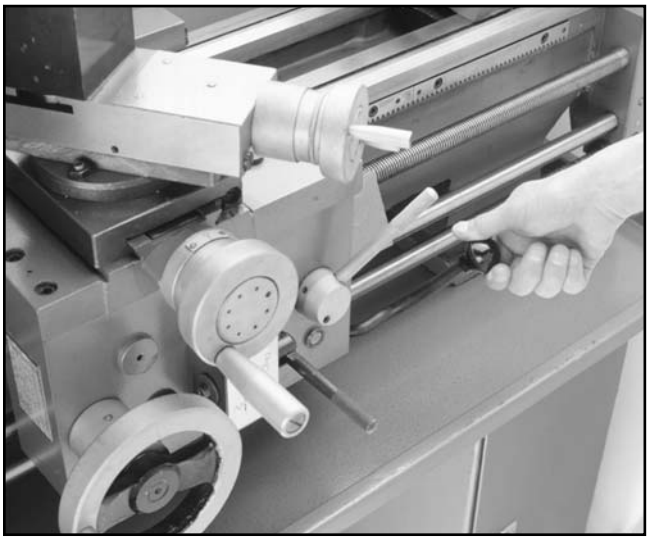


Figure 21. Spindle rotation control lever.

Spindle rotation control - The spindle rotation is controlled from the lever on the right hand side of the carriage. Moving the lever down causes the spindle to rotate counter clockwise. Moving the lever up causes the spindle to turn clockwise. The middle position stops the motor and the lever is considered to be in a neutral position. **See Figure 21.**

Tool Post and Holder

Tool post - A quick change tool post and 2 tool holders are supplied with the Model G4002/3. **Figure 22** shows tool post and a holder with optional bit. Cutting tools can be secured and removed by tightening or loosening the clamping screws in the top of the holder. A threaded stud is mounted in the top of the holder and has a knurled thumb wheel. Rotating the thumb wheel allows for adjustment of the tool holder so the cutting tool can be centered. The handle on the tool post can be rotated to lock and unlock the tool holder onto the dovetail ways. The tool post may be rotated by loosening the nut at the top of the tool post.

More styles of tool holders are available through Grizzly Industrial, Inc. Consult the latest catalog for styles, prices and ordering information.

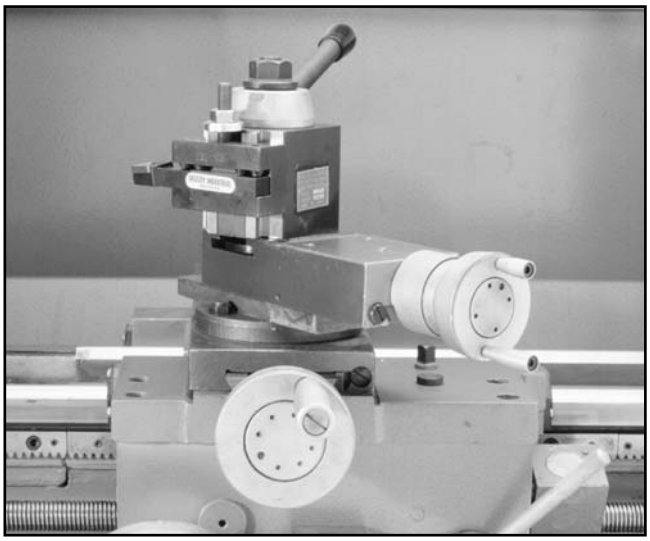


Figure 22. Quick change tool post.

Tailstock Controls

The tailstock serves many functions. The primary use is for holding centers and drill chucks. The barrel has a Morse taper #3 bore and is imprinted with graduations in millimeters and inches. Please refer to **Figure 23.**

Tailstock Handwheel - Turning the handwheel advances or retracts the barrel in the tailstock. The graduated dial on the handwheel is adjustable.

Top Lock Lever - This lever locks the tailstock barrel in place.

Side Lock Lever - This lever locks the tailstock in place on the lathe bed.

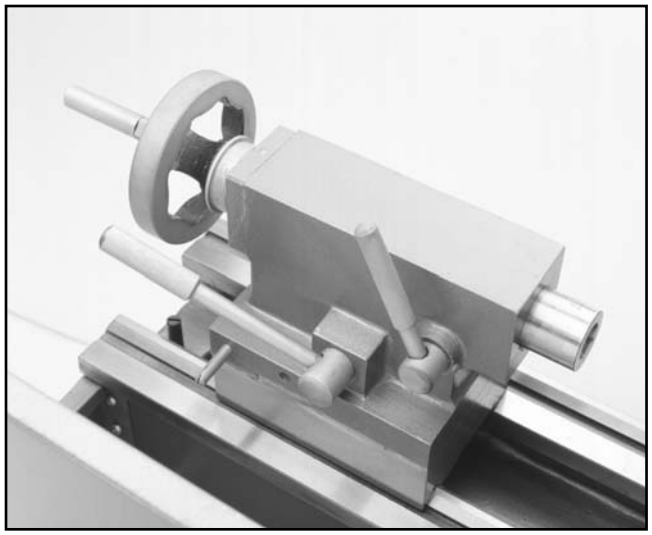


Figure 23. Detail of tailstock controls.

Test Run

⚠WARNING

Always make sure the power switch is in the "OFF" position and the spindle control lever is in the neutral position before plugging in power cord.

Now that the lathe is securely in place and you've read the safety guidelines, it's time to give the machine a test run.

Before starting the machine:

1. Make sure the machine is properly grounded, the Power Switch is in the "OFF" position and the spindle control lever is in the neutral position. **See Figure 24.**

2. Inspect the machine to ensure that all hand tools are out of the way, guards are in place and nothing is impeding the movement of the chuck. Check this by rotating the chuck by hand.

3. Rotate the stop switch, on the headstock of the lathe, in the direction indicated by the arrows imprinted on the button.

4. Lower the control lever on the apron. The spindle should start turning in a counter clockwise direction.

If the direction is reversed, contact our service department for further instructions.

5. If the lathe is running correctly, lift the spindle control lever to the neutral position, wait for the machine to come to a complete stop and take some time to become familiar with the various controls.

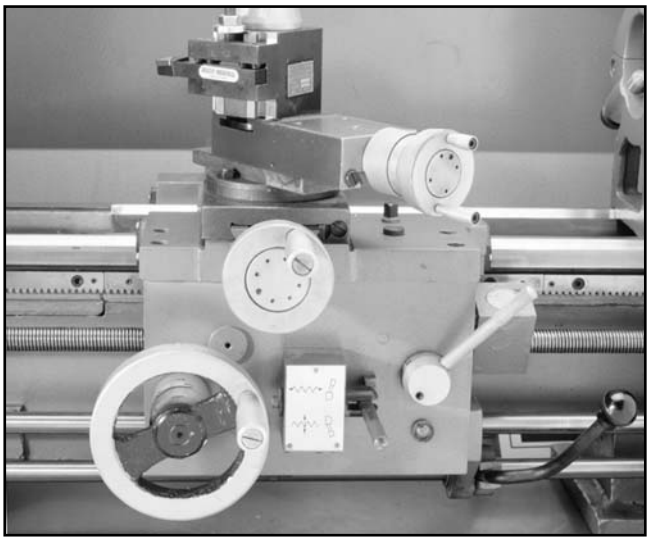


Figure 24. Carriage control lever in neutral.

SECTION 6: ADJUSTMENTS

Gibs

There are three main gib adjustments for the Model G4002/3. They are: the cross-slide gib, the compound slide gib and the saddle gib.

Cross-slide Gib - The gib on the cross-slide is adjusted by the two screws located at each end. **See Figure 25.** To adjust, loosen the setscrew located along the edge of the cross-slide. This setscrew is provided for locking the slide for certain operations. After making the adjustments detailed below, tighten the setscrew until it just touches the gib.

The gib is wedge shaped and by loosening the screw closest to the operator and then tightening the opposite screw, the slide will become looser. Conversely, loosening the screw furthest away from the operator and tightening the closer screw will tighten the gib. *Do not over tighten.* Adjust the gib so that it creates a slight drag when the slide is in motion. Test the ease of motion with the gib slightly loose. Begin tightening the gib and test after making small adjustments. When a slight drag is detected the gib is properly adjusted.

NOTICE

When adjusting gibs, keep in mind that the goal of gib adjustment is to remove unnecessary sloppiness from the slide's movement without causing them to bind. Loose gibs may cause poor finishes on the workpiece. Over tightening may cause premature wear.

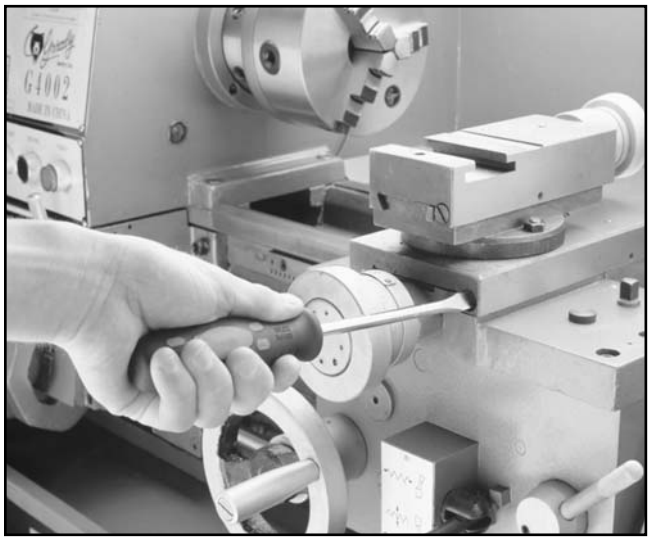


Figure 25. Adjusting the cross-slide gib.

Compound Gib - The gib on the compound is adjusted by the same method as the gibs on the cross-slide, *except* the screw closest to the operator (when the compound slide is aligned with the cross slide) must be loosened and the screw furthest from the operator tightened to make the gib tighter. **See Figure 26.**

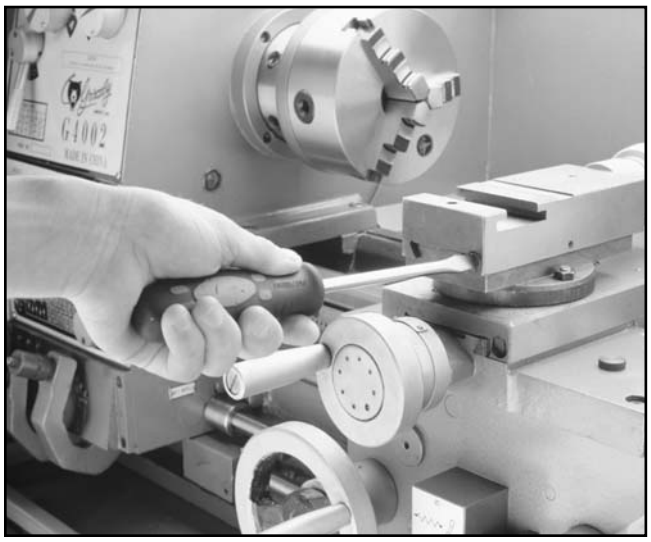


Figure 26. Tightening this screw tightens gib.

Saddle Gib - The saddle is supplied with a square head bolt on the front right hand side of the slide. Before making adjustments to the saddle gib, ensure that this bolt is loose by turning it counter clockwise. **See Figure 26b.**

It is important that the apron gib be properly adjusted. A loose gib will cause finish problems in a workpiece. A gib adjusted too tightly will cause premature wear.

The gib for the saddle is located on the bottom of the back edge of the slide. The tension on this gib is maintained by four setscrews with jam nuts. By loosening the jam nuts and tightening the setscrews, the gib will tighten. Loosening the setscrews will loosen the gib. The gib strip is properly adjusted when a slight drag is detected while moving the apron. Do not over tighten.

It is important the 4 setscrews are tightened evenly. When tightening the jam nuts, hold the setscrew's position using an Allen® wrench.

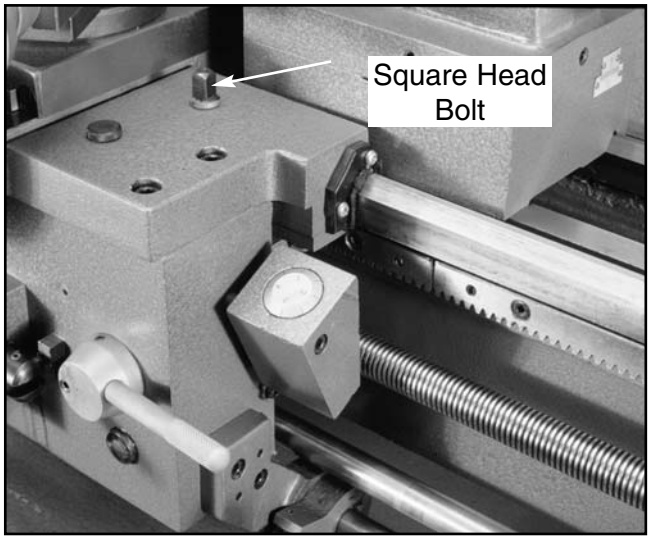


Figure 26b. This bolt locks the apron in place.

Steady/Follow Rest

To adjust the **Steady Rest**:

1. Loosen the lock nuts. **See Figure 27.**

2. Open the sliding fingers by turning the knurled screws until they fit around the workpiece. Secure the steady rest in position.

3. Tighten the knurled screws so that the fingers are snug, but not tight against the workpiece. Tighten the setscrews and the lock nuts.

4. Lubricate the brass points with machine oil.

The **Follow Rest** is setup in the same manner except that the place of the third finger is taken up by the tool bit. The follow rest prevents long, small diameter pieces from flexing under the cutting pressure from the tool bit.

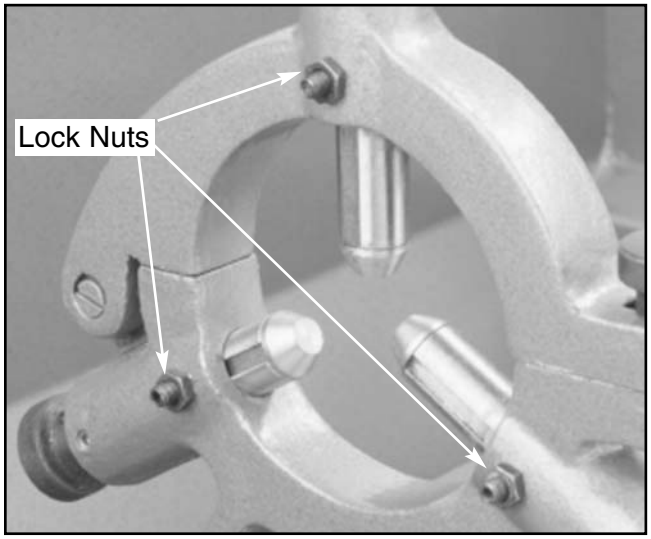


Figure 27. Steady rest lock nuts.

Tailstock

The tailstock on the Model G4002/3 is aligned at the factory with the headstock. It is recommended that you take the time to ensure that the tailstock is aligned to your own desired tolerances. To align the tailstock:

1. Center drill a 6" long piece of bar stock on both ends. Set it aside for use in step **4.**

2. Make a dead center by turning a shoulder to make a shank. Flip the piece over in the chuck and turn a 60° point. **See Figure 28.** As long as it remains in the chuck, the point of your center will be accurate to your spindle's axis. Keep in mind that the point will have to be refinished whenever it is removed and returned to the chuck.

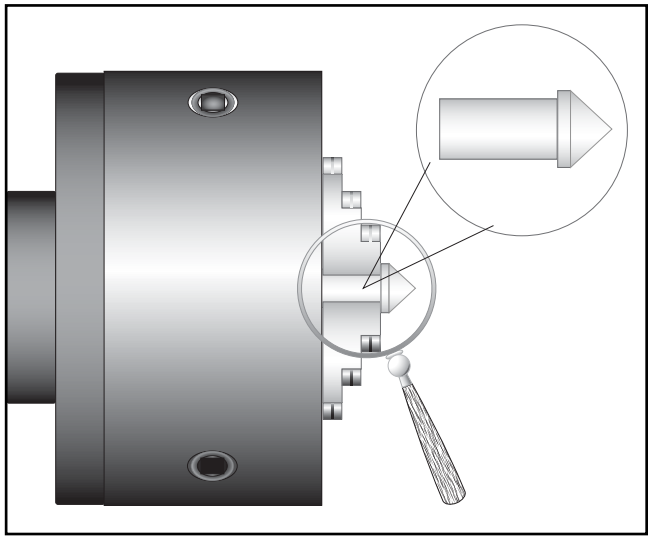


Figure 28. Finished dead center.

3. Place the live center in your tailstock.

4. Attach a lathe dog to the bar stock and mount it between the centers. **See Figure 29.**

5. Turn approximately .010" off the diameter.

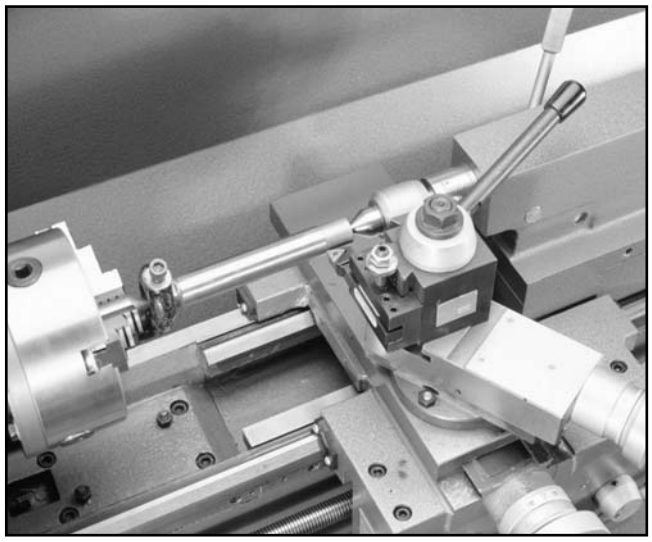


Figure 29. Bar stock mounted on centers.

TIP

Before making adjustments to the tailstock, mount a dial indicator so that the dial's plunger is on the tailstock barrel. **See Figure 30.**

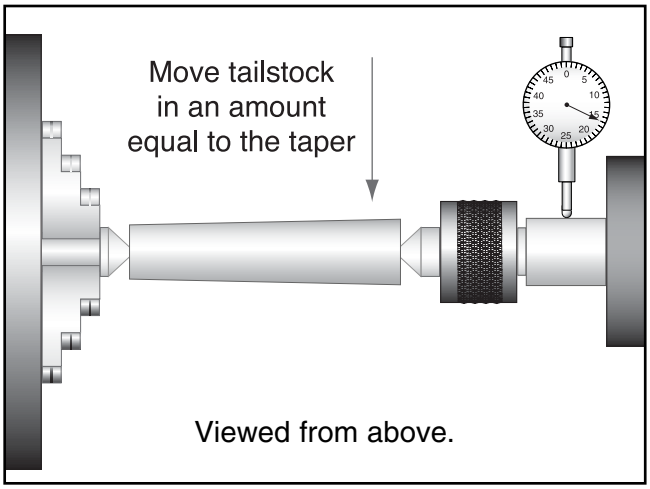


Figure 30. Adjusting for headstock end taper.

6. Measure the stock with a micrometer. If the stock is fat at the tailstock end, the tailstock needs to be moved toward you the amount of the taper. **See Figure 30.**

If the stock is thinner at the tailstock end, the tailstock needs to be moved away from the operator by at least the amount of the taper. **See Figure 31.**

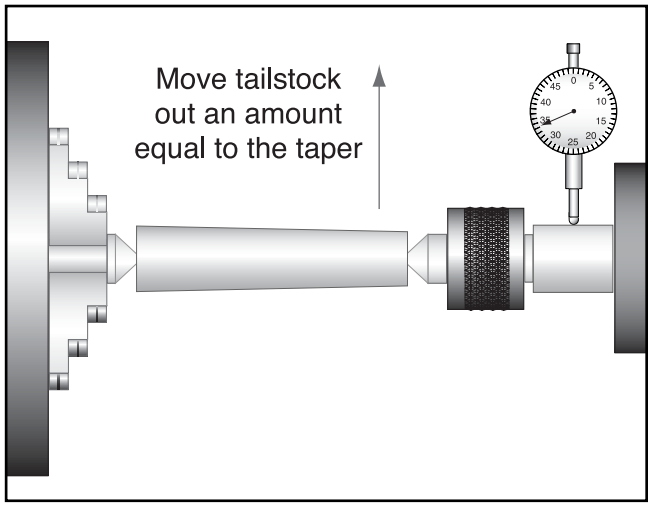


Figure 31. Adjusting for tailstock end taper.

7. Loosen the tailstock mounting bolt. Adjust the tailstock offset by the amount of the taper by turning the adjustment setscrews. **See Figure 32.** Turn another .010" off of the stock and check for taper. Repeat as necessary until the desired amount of accuracy is achieved.

NOTICE

Do Not forget to lock down the tailstock after each adjustment.

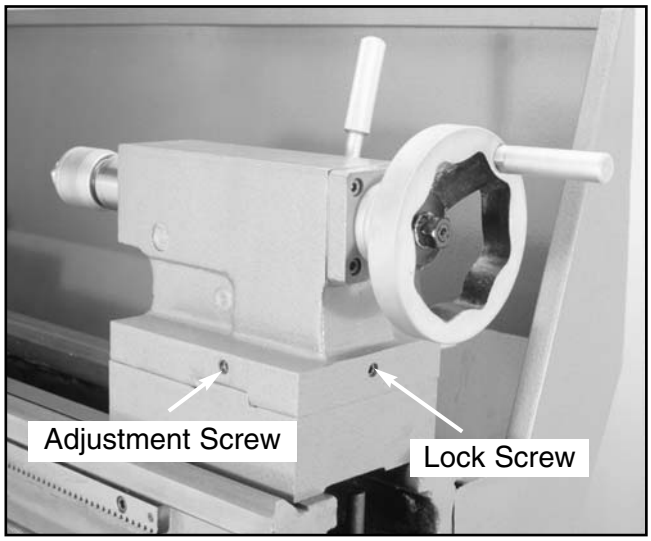


Figure 32. Tailstock offset adjustment screw.

SECTION 7: MAINTENANCE

⚠WARNING

ALWAYS disconnect the electric power to the machine before servicing. NEVER lubricate your lathe while it is running.

Lubrication

Your Model G4002/3 will function best when it is clean and well lubricated. Take the time to wipe down and oil the machine after use. We recommend using ISO 68 or SAE 20W non-detergent oil unless otherwise specified.

Apron - Apply lubrication to the apron through the 2 ball fittings on the top face of the apron and one near the apron handwheel. **See Figure 33.** There is a level glass on the front of the apron and a fill plug on top. Make sure the oil level is between the 2 red marks on the glass before using lathe.

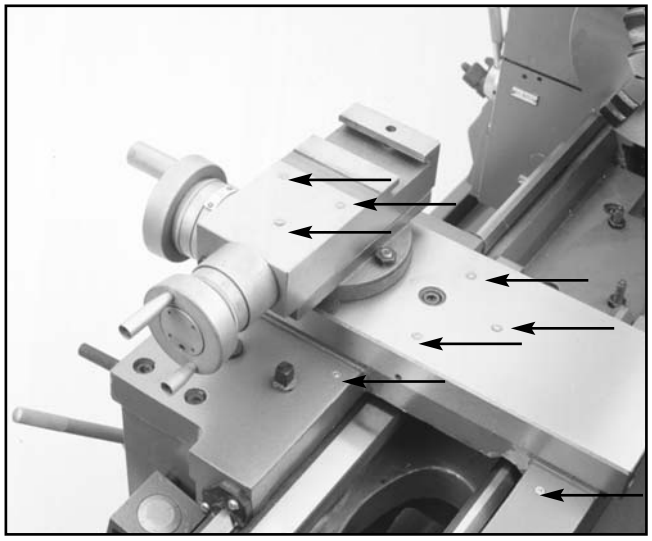


Figure 33. Viewed from behind for clarity.

Cross-Slide and Compound - These slides are also supplied with ball fittings in their top surfaces and should be oiled the same as the apron. **See Figure 33.**

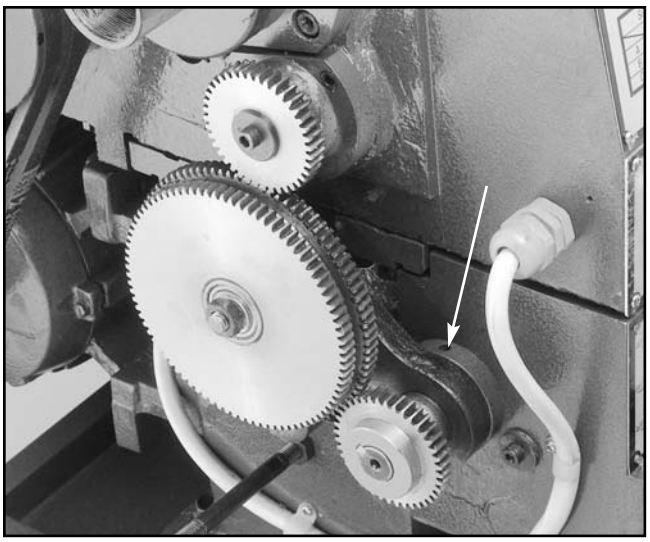


Figure 34. External gears and port.

External Gearing - Apply only a minimal amount of oil to the teeth of the end gears. Avoid getting oil on the belt or pulleys when lubricating**.**

Apply one squirt of oil into the port shown in **Figure 34.**

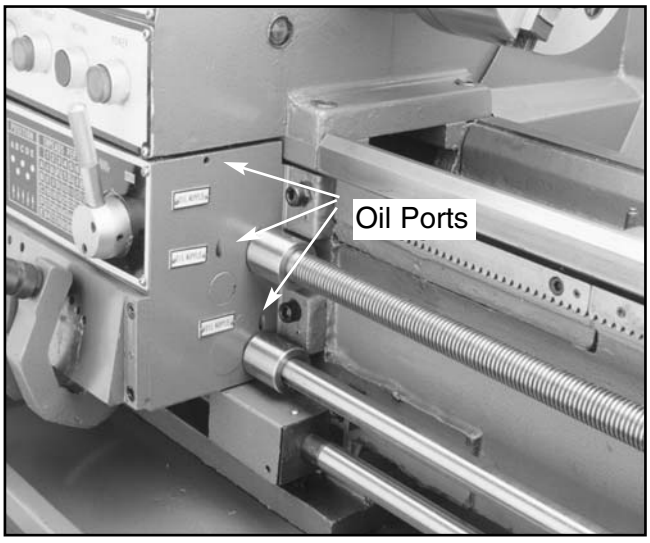


Figure 35. Gearbox lubrication points.

Quick Change Gearbox - Lubrication for the Gearbox is provided through 3 oil points, labeled oil nipple. Add a squirt or two of oil after every three-to-four hours of use. **See Figure 35.**

Motor - The bearings used in the motor are shielded and lubricated for life.

Slides and Ways - Apply oil to the ways and slides after each use. Wipe the ways with a clean rag prior to lubrication to ensure that no grime is carried along with your lubricant into friction-sensitive areas. Applying oil to the bedways and other bare metal parts also protect the lathe from rust and pitting.

Lead Screw and Feed Rod - Be sure to clean and lubricate the leadscrew, feed rod and switch control rod. The lead screw and feed rod have a bearing on the tail stock end support that will require one to two squirts of oil. **See Figure 36.**

Headstock Gearbox - The oil in the headstock should be changed after the first 2 hours of use. Then, every 6 months, depending on usage. It is recommended that a light weight, non detergent oil be used. Viscosity can range from 10W to 30W and may include multi-viscosity oil in this same range.

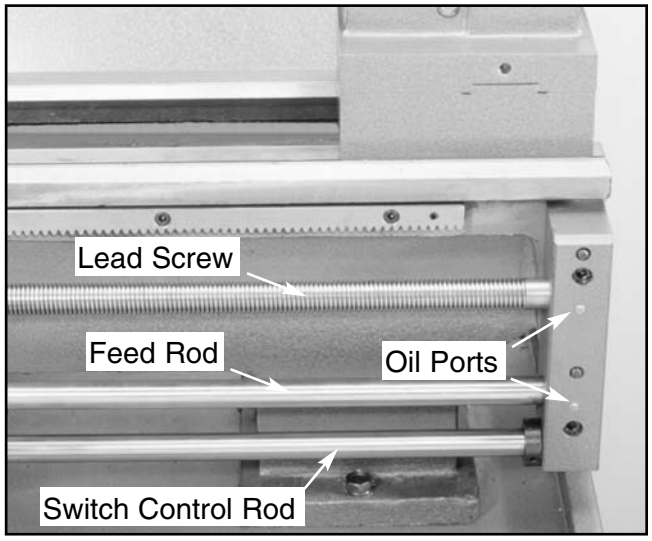


Figure 36. Lead screw, feed rod and switch rod.

Tailstock - The tailstock is fitted with one oiling port. The tailstock barrel may be oiled directly. Apply oil each week, or after every five uses (depending on the frequency of operation). Be sure to clean the slide ways for the tailstock and lift the tailstock and squirt a few drops of oil on the ways. It is a good idea to remove the tailstock once a month and wipe the bottom thoroughly and replace. **See Figure 37.**

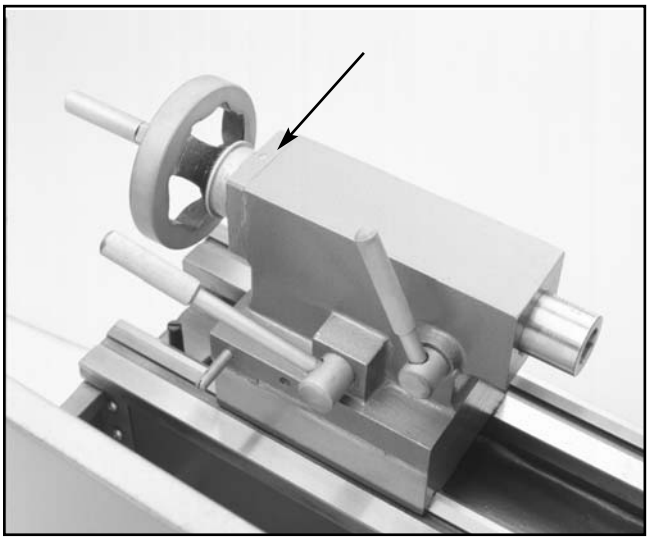


Figure 37. Tailstock oiling point.

Bearing Preload

This lathe is shipped from the factory with the bearing preload already set. If the preload requires resetting for whatever reason, please contact our service department for further instructions.

SECTION 8: CLOSURE

The following pages contain general machine data, parts diagram, parts lists and Warranty/Return information for your Model G4002/3.

If you need parts or help in assembling your machine, or if you need operational information, we encourage you to call our Service Department. Our trained service technicians will be glad to help you. If you have comments dealing specifically with this manual, please write to our Bellingham, Washington location using the address in the Introduction section of this manual.

The specifications, drawings, and photographs illustrated in this manual represent the Model G4002/3 as supplied when the manual was prepared. However, due to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. Whenever possible, though, we send manual updates to all owners of a particular tool or machine. Should you receive one, add the new information to this manual and keep it for reference.

We have included some important safety measures that are essential to this machine's operation. While most safety measures are generally universal, Grizzly reminds you that each work shop is different and safety rules should be considered *as they apply to your specific situation.*

We recommend you keep a copy of our current catalog for complete information regarding Grizzly's warranty and return policy. If you need additional technical information relating to this machine, or if you need general assistance or replacement parts, please contact the Service Department listed in the General Information.

This machine is designed for highly-skilled individuals who have an understanding of metalworking. We realize there are numerous kinds of cutters and specialized techniques used to turn metals. To list all of the techniques necessary to operate a metal lathe correctly for specific applications would require many volumes. Additional information sources are necessary to realize the full potential of this machine. Trade journals, metalworking magazines, and your local library are good places to start.

⚠WARNING

As with all power tools, there is danger associated with the Model G4002/3. Use the tool with respect and caution to lessen the possibility of mechanical damage or operator injury. If normal safety precautions are overlooked or ignored, injury to the operator or others in the area is likely.

NOTICE

The Model G4002/3 was specifically designed for turning operations. **DO NOT MODIFY AND/OR USE THIS LATHE FOR ANY OTHER PURPOSE. Modifications or improper use of this tool will void the warranty.** If you are confused about any aspect of this machine, **DO NOT** use it until you have answered all your questions.

MACHINE DATA SHEET

Customer Service #: (570) 326-3806 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

GRIZZLY MODEL G4002 12" X 24" GEAR HEAD LATHE

Design Type .....Floor Model

Overall Dimensions:

- Overall Length .....53"
- Overall Width .....26"
- Height With Optional Stand .....52½"
- Height Without Optional Stand .....23"
- Bed Width .....7¼"
- Spindle Bore .....1 7/16"
- Spindle Taper .....#5 Morse Taper
- Tailstock Taper .....#3 Morse Taper
- Tailstock Barrel Diameter .....1 9/16"
- Weight (Net) .....913 lbs.
- Weight (Shipping) .....1015 lbs.
- Crate Size .....59" L x 30" W x 29" H
- Footprint .....53" x 23"

Construction: .....Cast Iron

Capacity:

- Swing Over Bed .....12"
- Swing Over Gap .....17"
- Swing Over Cross Slide .....7"
- Distance Between Centers .....24"
- Spindle .....D1-4 Cam Lock
- Compound Travel .....3¼"
- Cross Slide Travel .....6¼"
- Tailstock Barrel Travel .....4"
- Spindle Speeds .....70, 200, 220, 270, 360, 600, 800, 1000, 1400 RPM
- Feed Rate Range .....40 @ .0011" - .031"
- Thread Range Inch .....40 @ 4 TPI - 112 TPI
- Thread Range Metric .....29 @ .2 - 4.5 mm

Motor:

- Type .....TEFC Capacitor Start Induction
- Horsepower 1½
- Phase / Hertz .....Single Phase / 60Hz
- Voltage 220V
- Amps 9
- RPM 1725
- Bearings .....Shielded And Lubricated For Life

Features:

.....6" 3-Jaw Chuck With Two Set Of Jaws
.....8" 4-Jaw Chuck With Reversible Jaws
.....Quick Change Tool Post With One Tool Holder
.....Extra Tool Holder
.....Steady Rest
.....Follow Rest
.....10" Face Plate
.....½" Drill Chuck W/ # 3 Morse Taper Arbor
.....2- #3 Morse Taper Dead Centers (1 Carbide Tipped)
.....#3 Morse Taper Live Center
.....Set of 6 Change Gears
.....Tool Box

Specifications, while deemed accurate, are not guaranteed.

MACHINE DATA SHEET

Customer Service #: (570) 326-3806 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

GRIZZLY MODEL G4003 12" X 36" GEAR HEAD LATHE

Design Type .....Floor Model

Overall Dimensions:
- Overall Length .....61"
- Overall Width .....23"
- Height With Optional Stand .....54½"
- Height W/O Optional Stand .....23"
- Bed Width .....7¼"
- Spindle Bore .....1 7/16"
- Spindle Taper .....#5 Morse Taper
- Tailstock Taper .....#3 Morse Taper
- Weight (Net) .....917 lbs.
- Weight (Shipping) .....1040 lbs.
- Crate Size .....66" L x 30" W x 28" H
- Footprint .....61" x 23"

Construction: .....Cast Iron

Capacity:
- Swing Over Bed .....12"
- Swing Over Gap .....17"
- Swing Over Cross Slide .....7"
- Distance Between Centers .....36"
- Spindle .....D1-4 Cam Lock
- Compound Travel .....3¼"
- Cross Slide Travel .....6¼"
- Tailstock Barrel Travel .....4"
- Spindle Speeds .....70, 200, 220, 270, 360, 600, 800, 1000, 1400 RPM
- Feed Rate Range .....40 @ .0011" - .031"
- Thread Range Inch .....40 @ 4 TPI - 112 TPI
- Thread Range Metric .....29 @ .2 - 4.5 mm

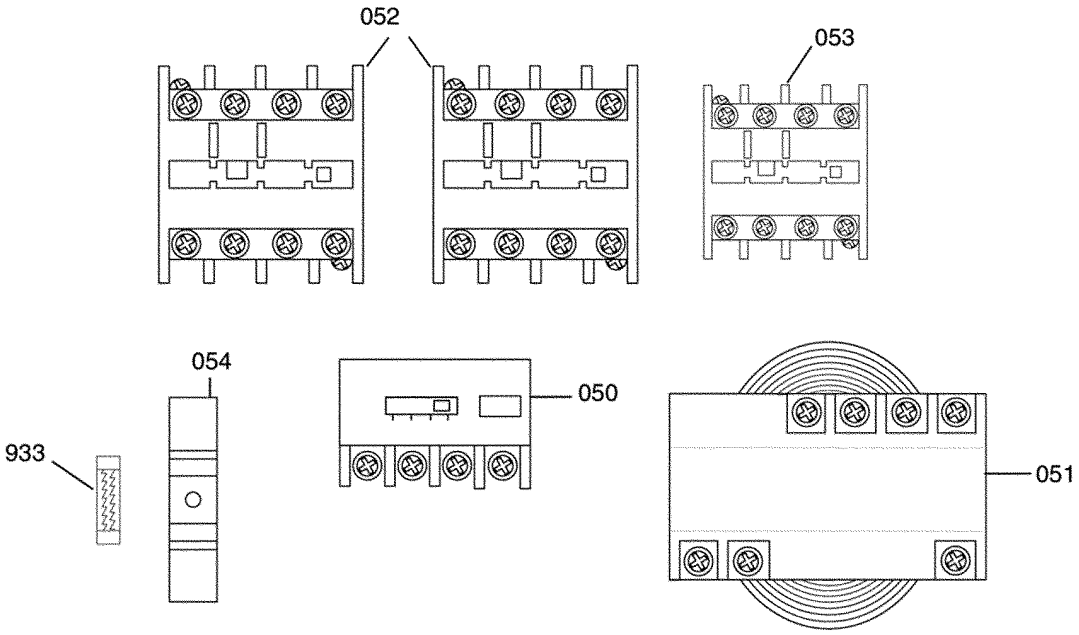
Motor:
- Type .....TEFC Capacitor Start Induction
- Horsepower 1½
- Phase / Hertz .....Single Phase / 60Hz
- Voltage 220V
- Amps 9
- RPM 1725
- Bearings .....Shielded And Lubricated For Life

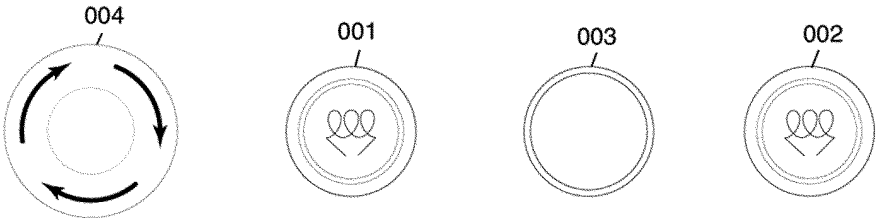
Features:

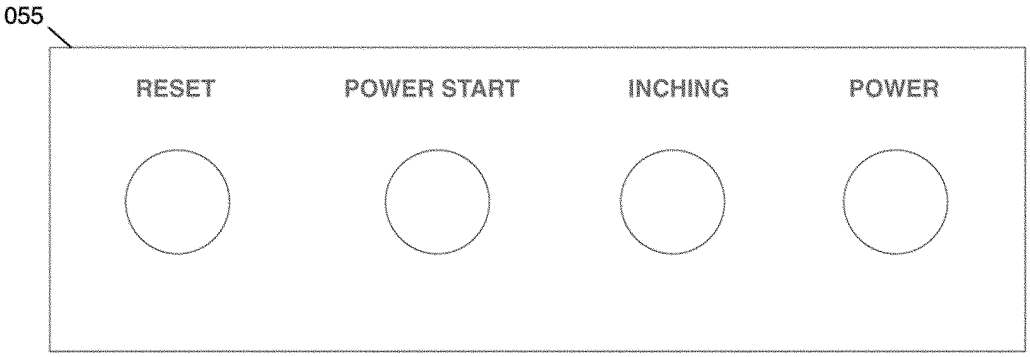
.....6" 3-Jaw Chuck With Two Sets Of Jaws
.....8" 4-Jaw Chuck With Reversible Jaws
.....Quick Change Tool Post With One Tool Holder
.....Extra Tool Holder
.....Steady Rest
.....Follow Rest
.....10" Face Plate
.....½" Drill Chuck W/ #3 Morse Taper Arbor
.....2- #3 Morse Taper Dead Centers (1 Carbide Tipped)
..... #3 Morse Taper Live Center
.....Oil Can
.....Set Of Six Change Gears
.....Tool Box

Specifications, while deemed accurate, are not guaranteed.

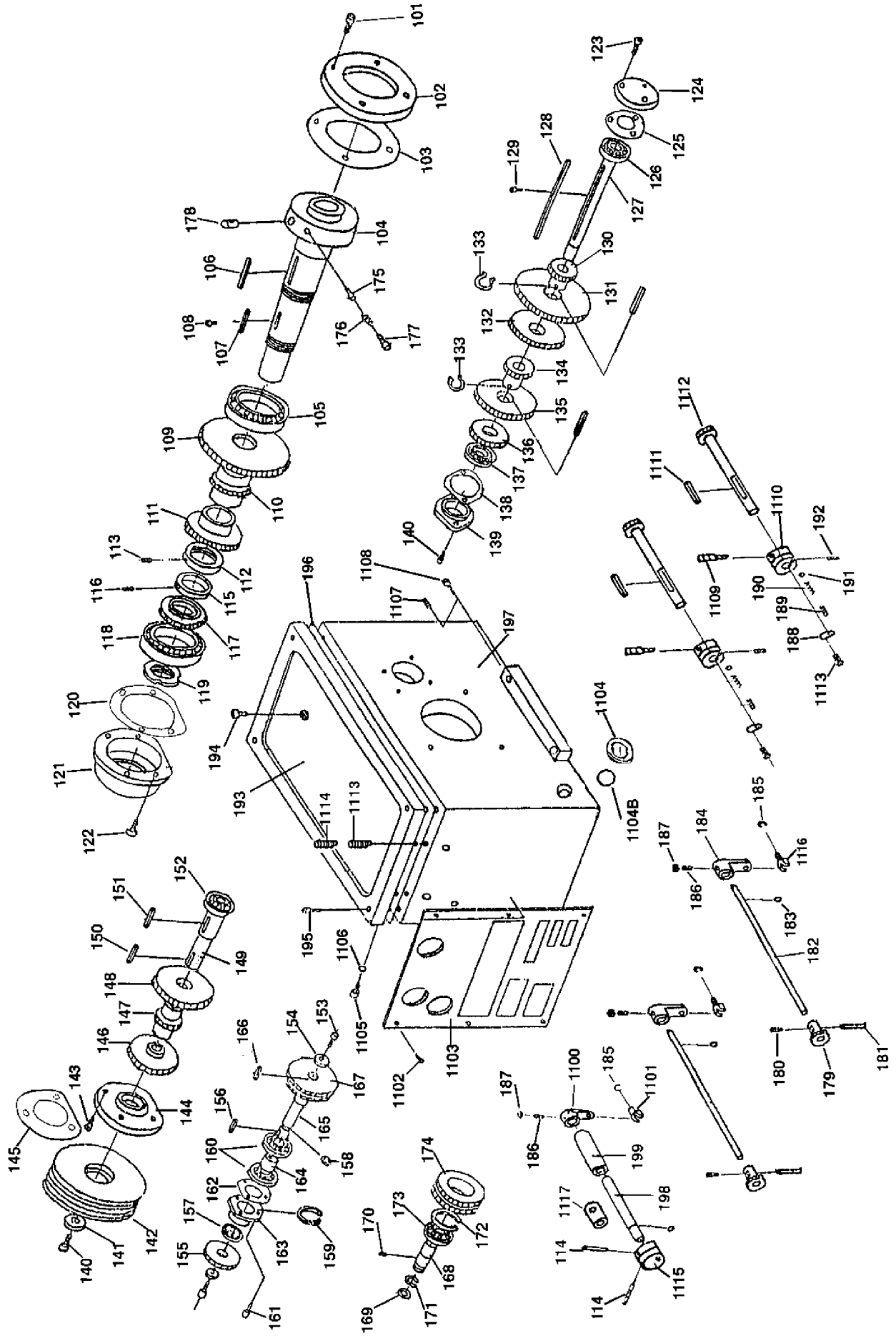
Electrical Components







REF	PART #	DESCRIPTION
001	P4002001	START BUTTON
002	P4002002	INDICATOR LIGHT
003	P4002003	JOG BUTTON
004	P4002004	RESET BUTTON
050	P4002050	THERMAL PROT. BLOCK
051	P4002051	TRANSFORMER
052	P4002052	MAGNETIC CONTACTOR
053	P4002053	MAGNETIC CONTACTOR
054	P4002054	FUSE HOLDER
055	P4002055	CONTROL PANEL PLATE
933	P4002933	FUSE 2 AMP



REF	PART #	DESCRIPTION
101	P4002101	SCREW
102	P4002102	COVER
103	P4002103	OIL SEAL
104	P4002104	SPINDLE
105	P7212	BEARING D-7212
106	P4002106	KEY
107	P4002107	KEY
108	P4002108	SCREW
109	P4002109	GEAR
110	P4002110	GEAR
111	P4002111	GEAR
112	P4002112	NUT
113	P4002113	SCREW
114	P4002114	PIN
115	P4002115	COLLAR
116	P4002116	SCREW
117	P4002117	GEAR
118	P7211	BEARING D-7211
119	P4002119	NUT
120	P4002120	OIL SEAL
121	P4002121	COVER
122	P4002122	SCREW
123	P4002123	SCREW
124	P4002124	COVER
125	P4002125	OIL SEAL
126	P60304	BEARING 60304
127	P4002127	SHAFT
128	P4002128	KEY
129	P4002129	SCREW
130	P4002130	GEAR
131	P4002131	GEAR
132	P4002132	GEAR
133	P4002133	C-CUP
134	P4002134	GEAR
135	P4002135	GEAR
136	P4002136	GEAR
137	P6004	BALL BEARING 6004
138	P4002138	OIL SEAL
139	P4002139	COVER

REF	PART #	DESCRIPTION
140	P4002140	SCREW
141	P4002141	WASHER
142	P4002142	PULLEY
143	P4002143	SCREW
144	P4002144	COVER
145	P4002145	OIL SEAL
146	P4002146	GEAR
147	P4002147	GEAR
148	P4002148	GEAR
149	P4002149	SHAFT
150	P4002150	KEY
151	P4002151	KEY
152	P6004	BALL BEARING 6004
153	P4002153	SCREW
154	P4002154	WASHER
155	P4002155	GEAR
156	P4002156	KEY
157	P4002157	OIL SEAL 20 X 45 X 10
158	P4002158	C-CLIP
159	P4002159	C-CLIP
160	P6004	BALL BEARING 6004
161	P4002161	SCREW
162	P4002162	OIL SEAL
163	P4002163	COVER
164	P4002164	COLLAR
165	P4002165	SHAFT
166	P4002166	KEY
167	P4002167	GEAR
168	P4002168	SHAFT
169	P4002169	OIL SEAL
170	P4002170	SCREW
171	P4002171	C-CLIP
172	P4002172	C-CLIP
173	P6204	BALL BEARING 6204
174	P4002174	GEAR
175	P4002175	LOCK PIN
176	P4002176	SPRING
177	P4002177	SCREW

REF	PART #	DESCRIPTION
z178	P4002178	ECCENTRIC SHAFT
179	P4002179	GEAR
180	P4002180	SCREW
181	P4002181	PIN
182	P4002182	SHAFT
183	P4002183	OIL SEAL
184	P4002184	SHAFT ARM
185	P4002185	C-CLIP
186	P4002186	SCREW
187	P4002187	NUT
188	P4002188	SIGN BOARD
189	P4002189	SCREW
190	P4002190	SPRING
191	P4002191	BALL
192	P4002192	SCREW
193	P4002193	COVER
194	P4002194	SCREW
195	P4002195	SCREW
196	P4002196	OIL SEAL
197	P4002197	HEAD STOCK
198	P4002198	SHAFT
199	P4002199	COLLAR
1100	P40021100	SHIFTER ARM
1101	P40021101	SHIFTER
1102	P1183108	RIVET
1103	P40021103	SIGN BOARD
1104	P40021104	OIL WINDOW
1104B	P40021104B	O-RING
1105	P40021105	SCREW
1106	P40021106	OIL SEAL
1107	P40021107	SCREW
1108	P40021108	SCREW
1109	P40021109	HANDLE
1110	P40021110	BOSS
1111	P40021111	KEY
1112	P40021112	GEAR
1113	P40021113	SCREW
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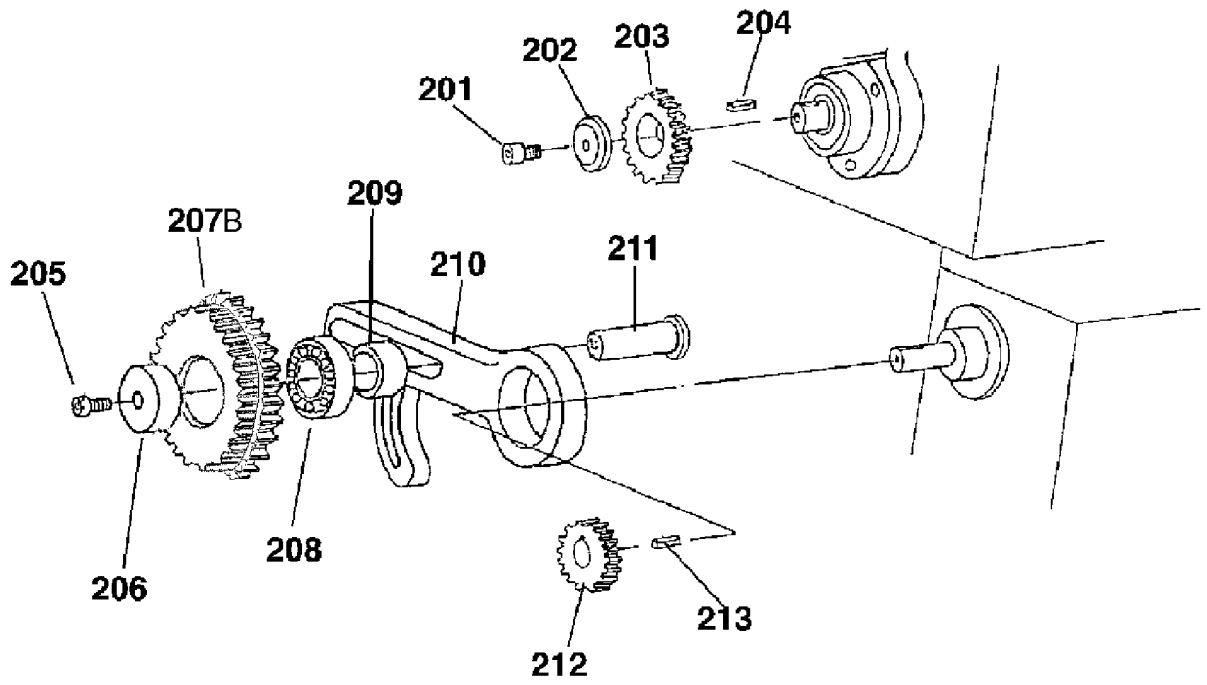
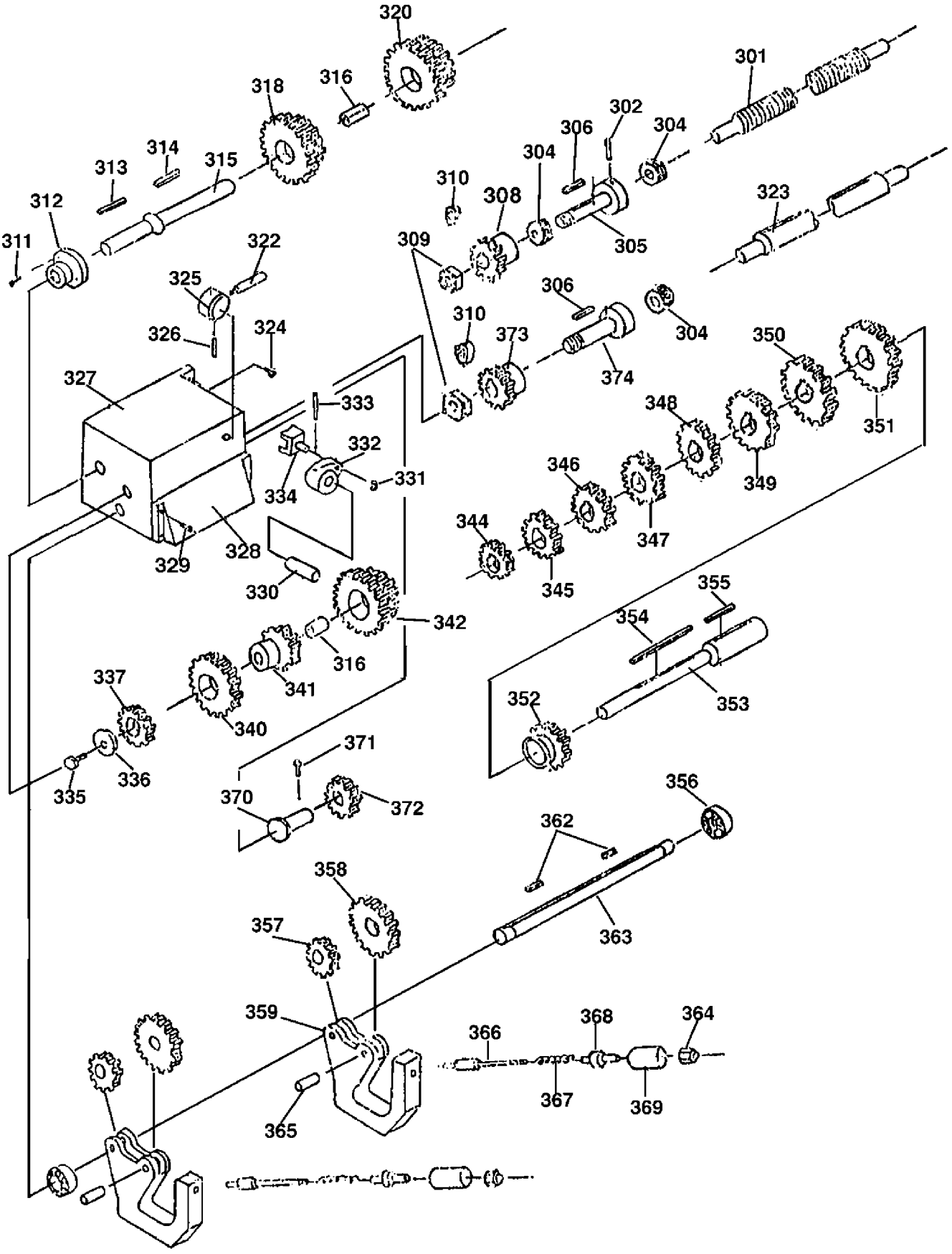
1115	P40021115	BOSS
1116	P40021116	SHIFTER
1117	P40021117	COLLAR



REF	PART #	DESCRIPTION
201	PSB26M	CAP SCREW M6-1 X 12
202	P4002202	WASHER
203	P4002203	GEAR
204	PK12M	KEY 5 X 5 X 30
205	PSB26M	CAP SCREW M6-1 X 12
206	P4002206	WASHER
207B	P4002207B	STEP GEAR 86-91T
208	P6202	BALL BEARING 6202
210	P4002210	QUADRANT
211	P4002211	SHAFT
212	P4002212	GEAR
213	PK12M	KEY 5 X 5 X 30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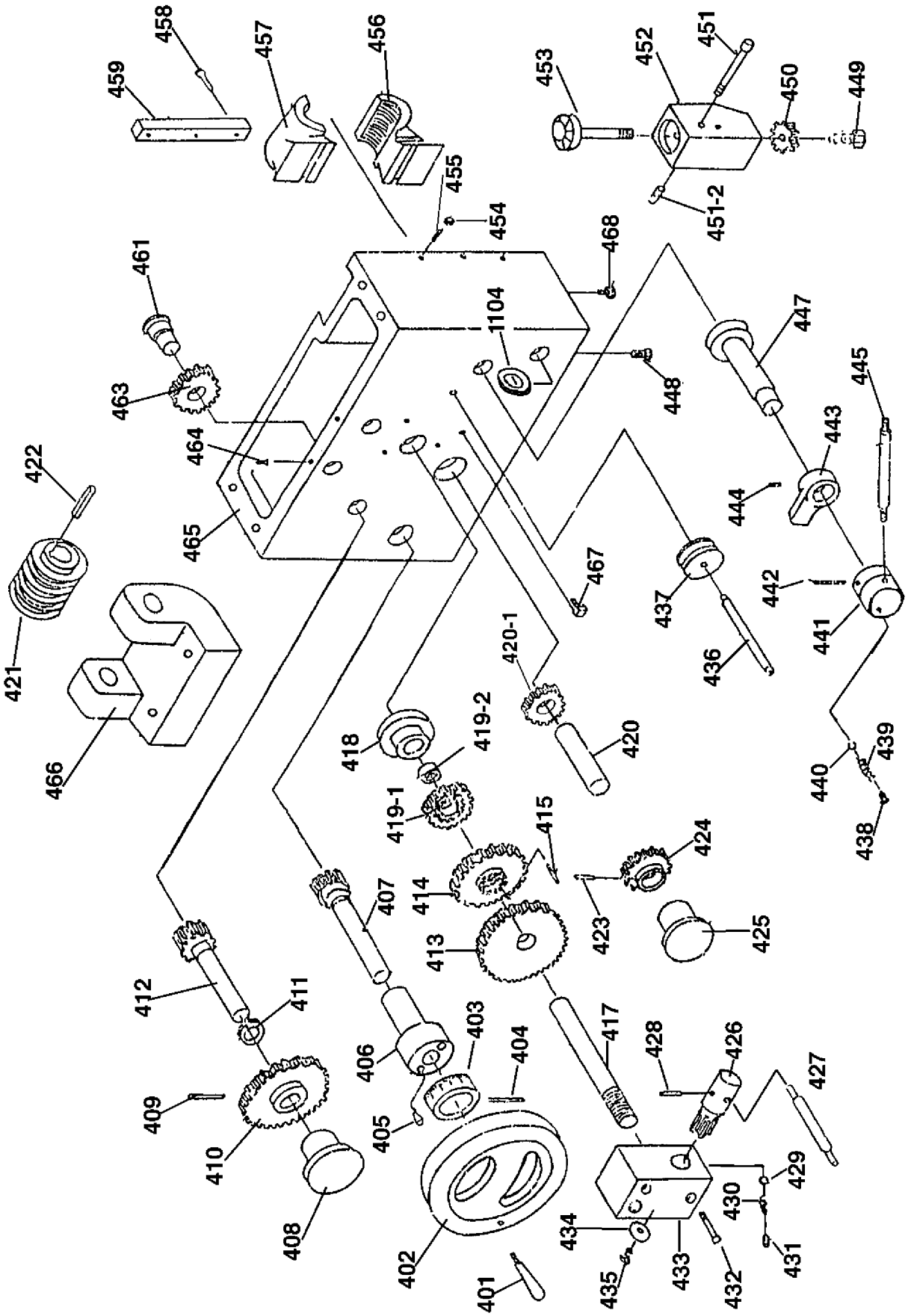
REF	PART #	DESCRIPTION
301	P4002301	LEAD SCREW
302	P4002302	PIN
304	P8103	BEARING 8103
305	P4002305	SHAFT
306	PK19M	KEY 5 X 5 X 14
308	P4002308	GEAR
309	PN09M	HEX NUT M12-1.75
310	P4002310	WASHER
311	P4002311	SCREW
312	P4002312	COVER
313	PK12M	KEY 5 X 5 X 30
314	PK06M	KEY 5 X 5 X 10
315	P4002315	SHAFT
316	P4002316	BUSHING
318	P4002318	GEAR
320	P4002320	GEAR
322	P4002322	LEVER
323	P4002323	FEED ROD
323A	P4002323A	LEAD SCREW
324	P4002324	SCREW
325	P4002325	BOSS
326	P4002326	PIN
327	P4002327	GEAR BOX
327A	P4002327A	COMPLETE GEAR BOX
328	P4002328	PLATE
329	P4002329	SCREW
330	P4002330	SHAFT
331	PEC04M	E-CLIP 13MM
332	P4002332	SHIFT PIVOT
333	P4002333	PIN
334	P4002334	SHIFT YOKE
335	PSB26M	CAP SCREW M6-1 X 12
336	P4002336	WASHER
337	P4002337	GEAR
338	P4002338	HALF NUTS
339	P4002339	WORM
340	P4002340	GEAR
341	P4002341	GEAR

REF	PART #	DESCRIPTION
342	P4002342	GEAR
343	P4002343	GEAR
344	P4002344	GEAR
345	P4002345	GEAR
346	P4002346	GEAR
347	P4002347	GEAR
348	P4002348	GEAR
349	P4002349	GEAR
350	P4002350	GEAR
351	P4002351	GEAR
352	P4002352	GEAR
353	P4002353	SHAFT
354	P4002354	KEY 5 x 5 x 75
355	PK02M	KEY 5 X 5 X 40
356	P4002356	BEARING 7000102
357	P4002357	GEAR
358	P4002358	GEAR
359	P4002359	SHIFT LEVER
362	P4002362	KEY
363	P4002363	SHAFT
364	PN01M	HEX NUT M6-1.0
365	P4002365	SHAFT
366	P4002366	SHAFT
367	P4002367	SPRING
368	P4002368	SLEEVE
369	P4002369	HOUSING
370	P4002370	SHAFT
371	P4002371	SCREW
372	P4002372	GEAR
373	P4002373	GEAR
374	P4002374	SHAFT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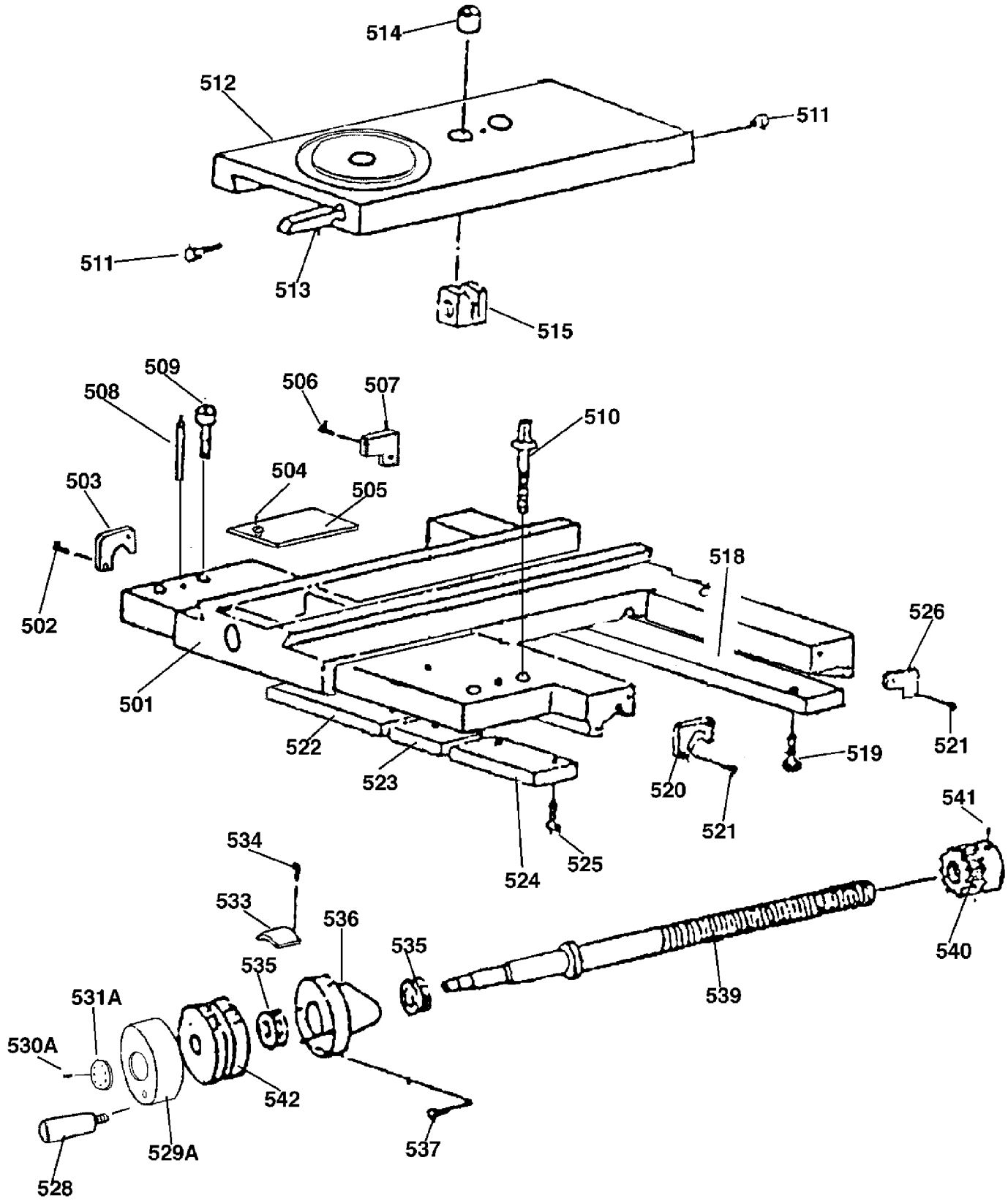
REF	PART #	DESCRIPTION
401	P4002401	HANDLE
402	P4002402	HAND WHEEL
403	P4002403	INDEXING RING
404	P4002404	PIN
405	P4002405	SCREW
406	P4002406	BRACKET
407	P4002407	GEAR SHAFT
408	P4002408	BUSHING
409	PRP05M	ROLL PIN 5 X 30
410	P4002410	GEAR
411	P4002411	RETAINING RING
412	P4002412	GEAR SHAFT
413	P4002413	GEAR
414	P4002414	GEAR
415	P4002415	PIN
417	P4002417	SHAFT
418	P4002418	BUSHING
419-1	P4002419-1	GEAR
419-2	P4002419-2	SPACER
420	P4002420	SHAFT
421	P4002421	WORM
422	P4002422	FLAT KEY
423	PRP06M	ROLL PIN 5 X 24
424	P4002424	GEAR
425	P4002425	BUSHING
426	P4002426	GEAR SHAFT
427	P4002427	LEVER
428	P4002428	PIN
429	P4002429	BALL
430	P4002430	SPRING
431	P4002431	SCREW
432	P4002432	SCREW
433	P4002433	BOSS
434	P4002434	WASHER
435	P4002435	SCREW

REF	PART #	DESCRIPTION
436	P4002436	SHAFT
437	P4002437	SAFETY SHIFTER
438	P4002438	SCREW
439	P4002439	SPRING
440	P4002440	BALL
441	P4002441	BOSS
442	P4002442	PIN
443	P4002443	DOG
444	P4002444	SCREW
445	P4002445	LEVER
447	P4002447	SHAFT
448	P4002448	SCREW
449	PSB28M	CAP SCREW M6-1 X 15
450	P4002450	GEAR
451	P4002451	SCREW
451-2	P4002451-2	SPACER
452	P4002452	HOUSING
453	P4002453	THREAD DIAL
454	PN01M	HEX NUT M6-1.0
455	P4002455	SCREW
456	P4002456	HALF NUT
457	P4002457	HALF NUT HOUSING
458	P4002458	SCREW
459	P4002459	GIB
461	P4002461	SHAFT
463	P4002463	GEAR
464	P4002464	SCREW
465	P4002465	APRON CASE
466	P4002466	WORM BRACKET
467	P4002467	LIMIT BLOCK
468	P4002468	SCREW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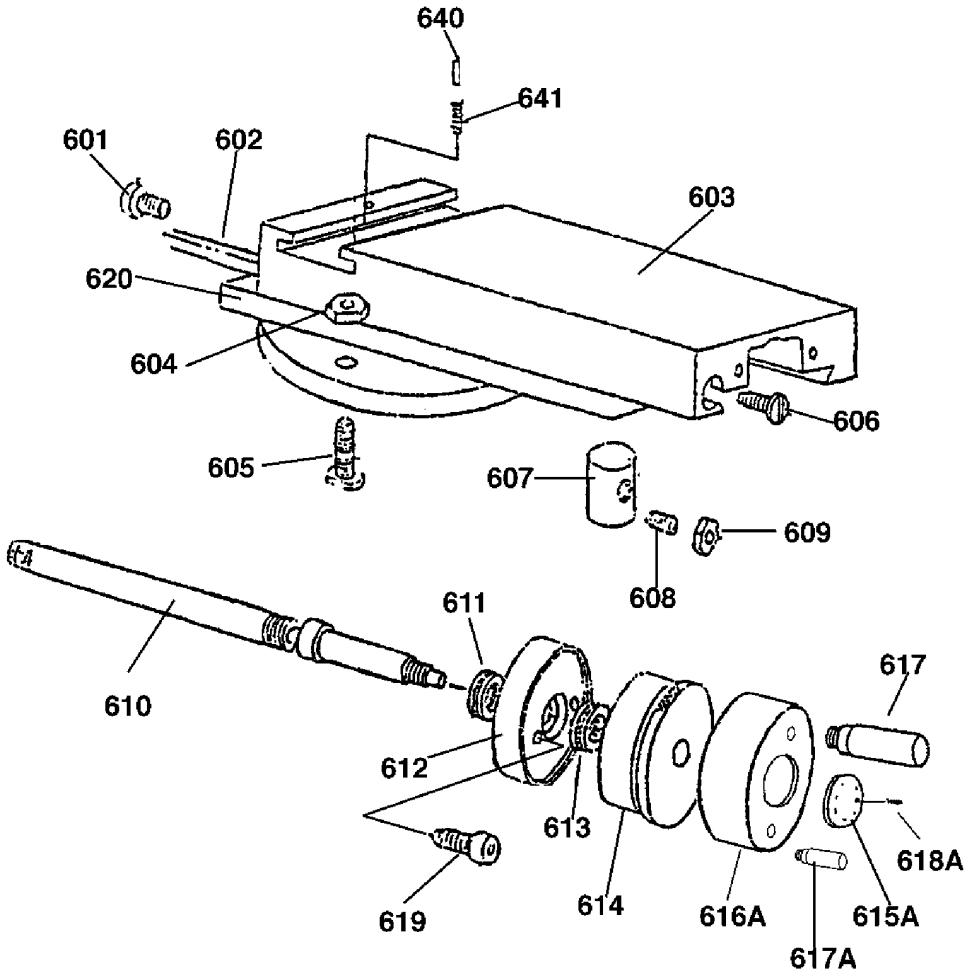
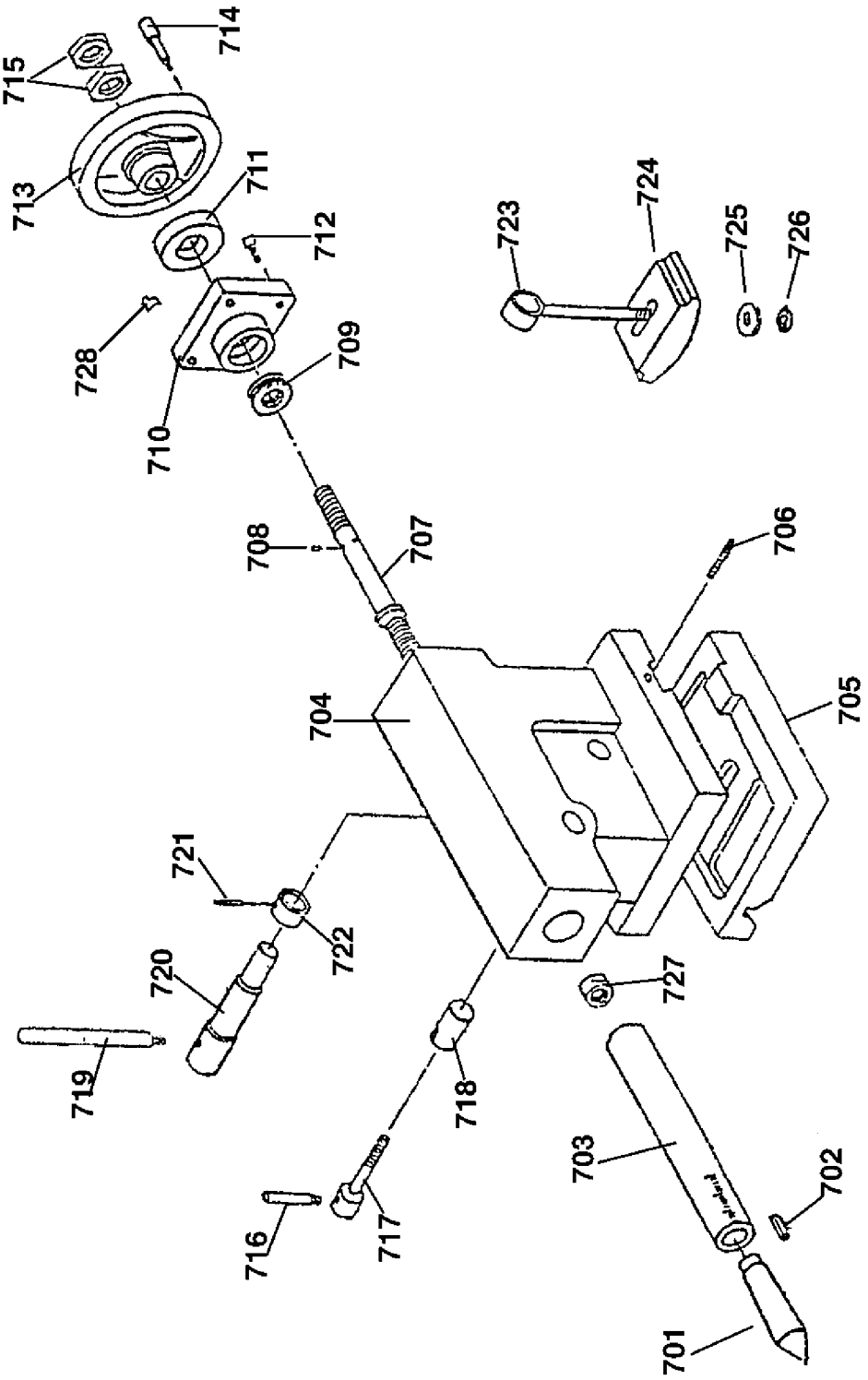
REF	PART #	DESCRIPTION
501	P4002501	SADDLE
502	P4002502	SCREW
503	P4002503	WIPER
504	P4002504	SCREW
505	P4002505	COVER
506	P4002506	SCREW
507	P4002507	WIPER
508	P4002508	PIN
509	P4002509	SCREW
510	P4002510	SCREW
511	P4002511	SCREW
512	P4002512	CROSS SLIDE
513	P4002513	GIB
514	P4002514	BUSHING
515	P4002515	NUT
518	P4002518	SLIDE PLATE
519	P4002519	SCREW
520	P4002520	WIPER
521	P4002521	SCREW
522	P4002522	SLIDE PLATE
523	P4002523	SLIDE PLATE
524	P4002524	SLIDE PLATE
525	PB19M	HEX BOLT M8-1.25 X 24
526	P4002526	WIPER
527	P4002527	SCREW
528	P4002528	HANDLE
529A	P4002529A	BRACKET
530A	P4002530A	SET SCREW
531A	P4002531A	SPANNER NUT
533	P4002533	SIGN BOARD
534	P4002534	SCREW
535	P8102	BEARING 8102
536	P4002536	BRACKET
537	PSB06M	CAP SCREW M6-1 X 25
539	P4002539	LEAD SCREW
540	P4002540	GEAR
541	P4002541	SCREW
542	P4002542	DIAL
543	P4002543	SCREW



REF	PART #	DESCRIPTION
601	P4002601	SCREW
602	P4002602	GIB
603	P4002603	COMPOUND SLIDE
604	PN08M	HEX NUT M10-1.25
605	P4002605	SCREW
606	P4002606	SCREW
607	P4002607	LEAD SCREW NUT
608	P4002608	SCREW
609	PN01M	HEX NUT M6-1.0
610	P4002610	LEAD SCREW
611	P8101	BEARING 8101
612	P4002612	BRACKET
613	P8101	BEARING 8101
614	P4002614	INDEX RING
615A	P4002615A	SPANNER NUT
616A	P4002616A	BRACKET
617A	P4002617A	HANDLE
618A	P4002618A	SET SCREW
619	P4002619	SCREW
620	P4002620	COMPOUND REST
640	P4002640	PIN
641	P4002641	SPRING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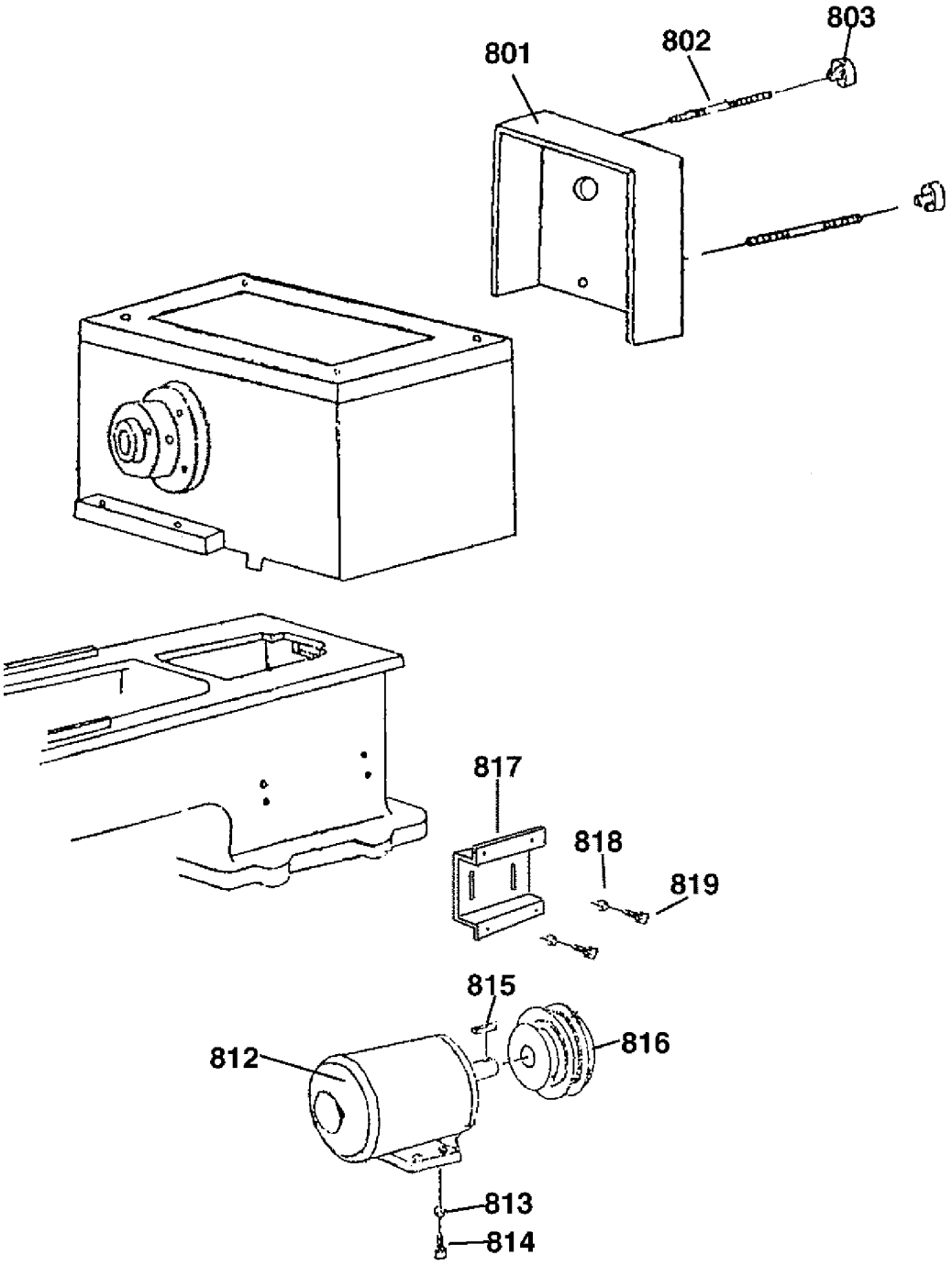
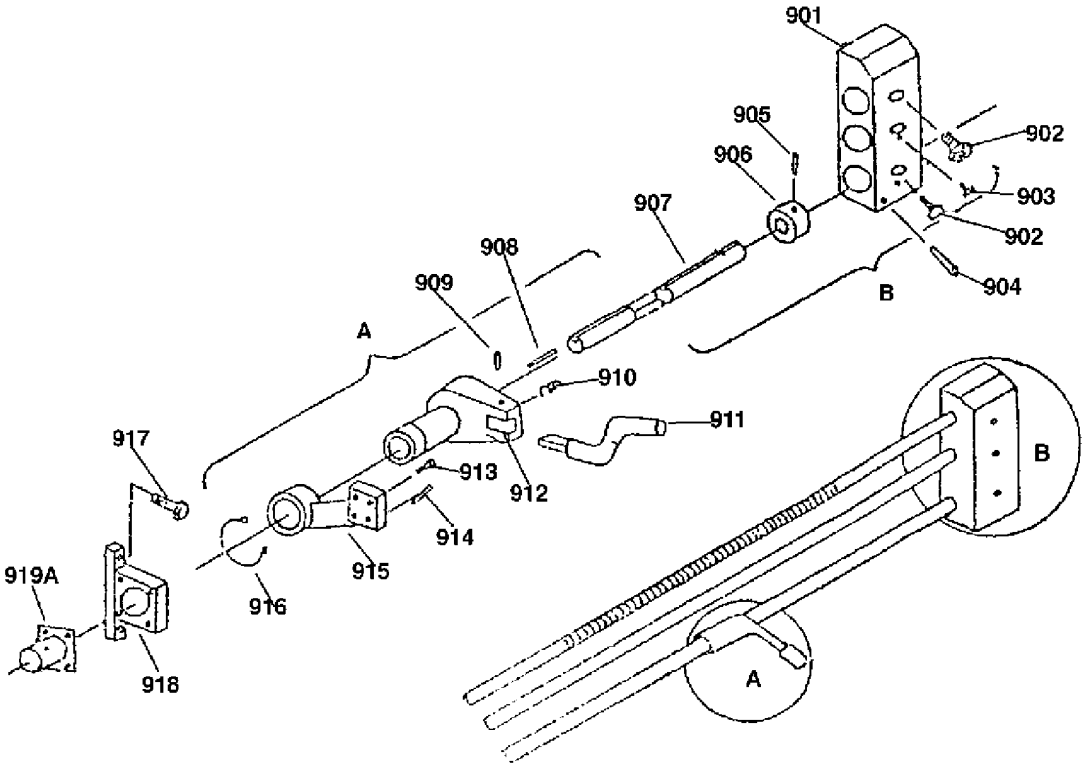
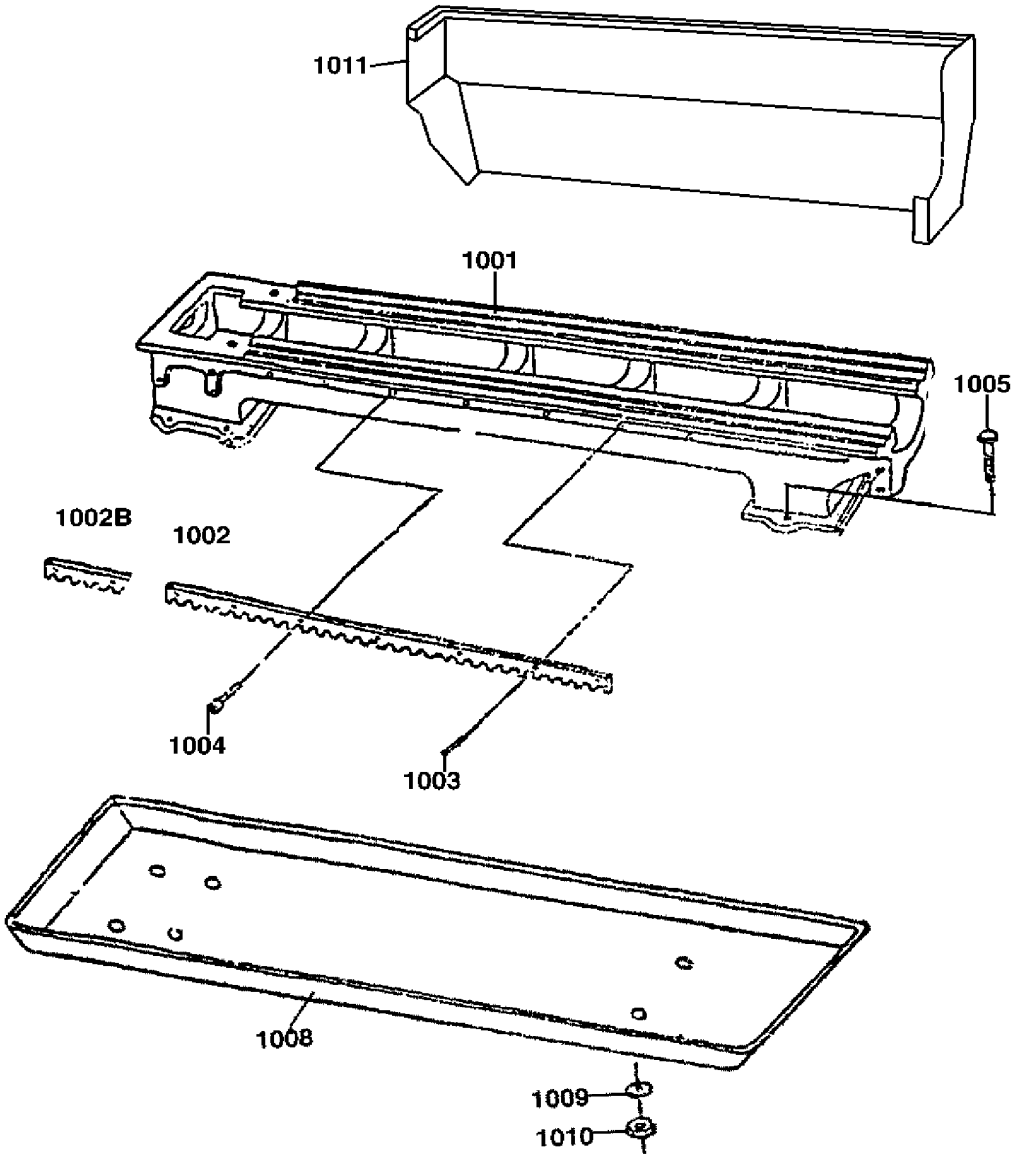
REF	PART #	DESCRIPTION
701	P4002701	CENTER
702	P4002702	KEY
703	P4002703	QUILL
704	P4002704	TAIL STOCK
705	P4002705	BASE
706	P4002706	SCREW
707	P4002707	SCREW
708	P4002708	PIN
709	P8101	BEARING 8101
710	P4002710	BRACKET
711	P4002711	INDEX RING
712	P4002712	SCREW
713	P4002713	HAND WHEEL
714	P4002714	HANDLE
715	PN09M	HEX NUT M12-1.75
716	P4002716	HANDLE
717	P4002717	LOCK SCREW
718	P4002718	LOCK SHAFT
719	P4002719	HANDLE
720	P4002720	SHAFT
721	P4002721	PIN
722	P4002722	COLLAR
723	P4002723	SHAFT
724	P4002724	BASE SHOE BLOCK
725	PW06M	FLAT WASHER 12MM
726	PN09M	HEX NUT M12-1.75
727	P4002727	NUT
728	P4002728	INDEX
730	P4002730	HANDLE STOP



REF	PART #	DESCRIPTION
801	P4002801	COVER
802	P4002802	SCREW
803	P4002803	NUT
812	P4002812	MOTOR 2 HP
813	PW04M	FLAT WASHER 10MM
814	P4002814	SCREW
815	P4002815	KEY
816	P4002816	PULLEY
817	P4002817	MOTOR MOUNT BRKT
818	P4002818	FLAT WASHER
819	P4002819	HEX BOLT



REF	PART #	DESCRIPTION
901	P4002901	BRACKET
902	P4002902	SCREW
903	P4002903	OIL CAP
904	P4002904	PIN
905	P4002905	SCREW
906	P4002906	COLLAR
907	P4002907	ROD
908	P4002908	KEY
909	P4002909	PIN
910	P4002910	SPRING
911	P4002911	HANDLE
912	P4002912	BRACKET
913	P4002913	SCREW
914	P4002914	PIN
915	P4002915	BRACKET
916	P4002916	C-CLIP
917	PSB31M	CAP SCR M8-1.25 X 25
918	P4002918	BRACKET
919A	P4002919A	FOR/REV SWITCH



REF	PART #	DESCRIPTION
1001	P40021001	LATHE BED
1002	P40021002	RACK
1002B	P40021002B	RACK, GAP
1003	P40021003	PIN
1004	P40021004	SCREW
1005	P40021005	SCREW
1008	P40021008	CHIP PAN
1009	P40021009	WASHER
1010	P40021010	NUT
1011	P40021011	SPLASH GUARD

WARRANTY AND RETURNS

Grizzly Imports, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number", which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

WARRANTY CARD

NAME_____ PHONE NUMBER_____
STREET_____
CITY_____STATE_____ZIP _____
MODEL# _____ INVOICE#_____

The following information is given on a voluntary basis. This information will be used for marketing purposes to help Grizzly develop better products. Your name will be included in our mailing **list** only. It will not be sold to other companies. of course, all information is strictly confidential.

1. How did you find out about us?

__Advertisement __Friend __Website
__Catalog __Card deck __Other_____

2. Do you think your machine represents good value? __YES __NO

3. Would you allow us to use your name as a reference for Grizzly customers in your area? __YES __NO
(Note: Your **name** will be used a maximum of three **times.)**

4. To which of the following publications do you subscribe? Check all that apply.

__Home Shop Machinist __Rifle Magazine Other _____
__Projects in Metal __Hand Loader Magazine
__Modeltec __Precision Shooter
__Live Steam __RC Modeler
__Shotgun News __Model Airplane News

5. What is your annual household income?

__$20,000-$30,000 __$50,001-$60,000 __$80,000-$90,000
__$30,001-$40,000 __$60,001-$70,000 __+$90,000
__$40,001-$50,000 __$70,001-$80,000

6. To which age group do you belong?

__20-30 __41-50 __61-70
__31-40 __51-60 __+70

7. Which of the following machines or accessories do you own? Check all that apply.

__Engine Lathe __Abrasive Cutoff __Sheet Metal Machine
__Band Saw (Metal) __Arc Welder __Other _____
__Band Saw (Wood) __Oxy/Ac. Outfit
__Milling Machine __Air Compressor
__Bench Grinder __Drill Press

8. How many of the machines you checked in Question 7 are Grizzly machines? _____

9. Which of the following tooling and accessories do you own? Check all that apply.

__Milling Vises __Collet Closer __Digital Readout
__Indexing Head __Taper Attachment __Tool Post Grinder
__Rotary Table __Boring Head __Other _____

10. In the space below, list three tools you would like Grizzly to carry.

11. Of all the mail order metalworking company's you have purchased from, how do you rate Grizzly in terms of overall customer satisfaction?

__The best __Above average __Average
__Below average __The worst

12. Comments_____
_____
_____
_____

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P.O. BOX 2069
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